

#### 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

Monday, June 14, 2021 WELL WORK PERMIT Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION 1615 WYNKOOP STREET DENVER, CO 80202

Re: Permit approval for BUSCH UNIT 2H

47-103-03405-00-00

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: BUSCH UNIT 2H

Farm Name: WILLIAM L. & DELORES J.

U.S. WELL NUMBER: 47-103-03405-00-00

Horizontal 6A New Drill Date Issued: 6/14/2021

## 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.

CO	ND	ITI	1O	15

- 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.

API NO. 47- <u>103</u> -	. 03405
OPERATOR WEL	L NO. Busch Unit 2H
Well Pad Name	: Gadd Pad

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

1) Well Operator:	ntero Reso	urces Corpor	494507062	Wetzel	Green	Porters Falls 7.5'
<u>-</u>			Operator ID	County	District	Quadrangle
2) Operator's Well N	lumber: Bus	ch Unit 2H	Well P	ad Name: Gad	dd Pad	
3) Farm Name/Surfa	ce Owner: <u>W</u>	/illiam L. & Delores	J. Gadd Public Ro	oad Access: E	ghtmile Roa	ad
4) Elevation, current	ground: 1	223.8' E	levation, propose	d post-construc	etion: ~1223	3.8
5) Well Type (a) C Othe		Oil _	Un	derground Stor	rage	
(b)If	Gas Shall	ow X	Deep			-
	Horiz	zontal X				
6) Existing Pad: Yes	or No Yes					
7) Proposed Target F Marcellus Shale: 7	. , ,		-	-		
8) Proposed Total Vo	ertical Depth	7400' TVD				
9) Formation at Tota			s			
10) Proposed Total N	Measured Dep	oth: 19200'				
11) Proposed Horizo	ntal Leg Len	gth: 9297'				
12) Approximate Fre	esh Water Str	ata Depths:	350'			
13) Method to Deter	mine Fresh V	Vater Depths:	47-095-02266			
14) Approximate Sal	ltwater Depth	ns: 1887', 191	7'			
15) Approximate Co	al Seam Dep	ths: 656', 971	•			
16) Approximate De	pth to Possib	le Void (coal n	nine, karst, other):	None Anticip	oated	
17) Does Proposed v directly overlying or			ams Yes	1	10 X	RECEIVED Office of Oil and Gas
(a) If Yes, provide	Mine Info:	Name:				MAY 1 3 2021
		Depth:			<u>F</u> _	WV Department of
		Seam:			<u> </u>	vironmental Protection
		Owner:	<del></del>			

API NO. 47-103 - 03465

OPERATOR WELL NO. Busch Unit 2H
Well Pad Name: Gadd Pad

18)

### CASING AND TUBING PROGRAM

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
20"	New	H-40	94#	80	80	CTS, 86 Cu. Ft.
13-3/8"	New	J-55	54.5#	400 *see #19	400 *see #19	CTS, 556 Cu. Ft.
9-5/8"	New	J-55	36#	2500	2500	CTS, 1018 Cu. Ft.
5-1/2"	New	P-110	23#	19200	19200	4872 Cu. Ft
2-3/8"	New	N-80	4.7#			
	(in) 20" 13-3/8" 9-5/8" 5-1/2"	or Used 20" New 13-3/8" New 9-5/8" New 5-1/2" New	or Used   Grade	or Used         Grade (Ib/ft)           20"         New H-40         94#           13-3/8"         New J-55         54.5#           9-5/8"         New J-55         36#           5-1/2"         New P-110         23#	Or (in)         Or Used         Grade (Ib/ft)         Drilling (ft)           20"         New H-40         94#         80           13-3/8"         New J-55         54.5#         400 *see #19           9-5/8"         New J-55         36#         2500           5-1/2"         New P-110         23#         19200	Size (in)         Or Used         Grade (lb/ft)         Weight per ft. (lb/ft)         FOOTAGE: For Drilling (ft)         Left in Well (ft)           20" New H-40         94#         80         80           13-3/8" New J-55         54.5#         400 *see #19         400 *see #19           9-5/8" New J-55         36#         2500         2500           5-1/2" New P-110         23#         19200         19200

Byan Hein' 5-19-21

ТҮРЕ	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-HPOZ & Toll - H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11,200			
Liners							

### **PACKERS**

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

W	W	-1	61	В
(1	0/	1	4	)

API NO. 47- 103 - 03/65

OPERATOR WELL NO. Busch Unit 2H

Well Pad Name: Gadd Pad

19) Des	scribe proposed	well w	ork, ir	ncluding	the drilli	ng and	blugging	back	of any	pilot no	ıe:
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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

- 21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 34.16 acres
- 22) Area to be disturbed for well pad only, less access road (acres): 17.00 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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<sup>\*</sup>Note: Attach additional sheets as needed.

API Number 47 - 103 - 63405 Operator's Well No. Busch 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) Lower Fishing Creek	Quadrangle Porters Falls 7.5'
Do you anticipate using more than 5,000 bbls of water to comple Will a pit be used? Yes No	ete the proposed well work? Yes Vo
If so, please describe anticipated pit waste:	ed at this sife (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	N. I. M. II.C. Describ thuill be provided on Form WP 24
	Number *UIC Permit # will be provided on Form WR-34  well locations when applicable. API# will be provided on Form WR-34  )
	-9 for disposal location) (Meadowfill Landfill Permit #SWF-1032-98) Northwestern Landfill Permit #SWF-1025/
Will closed loop system be used? If so, describe: Yes, fluids ste	
Drilling medium anticipated for this well (vertical and horizontal	al)? Air, freshwater, oil based, etc.  Surface - Air/Freshwater, intermediate - Dust/Stiff Foarm, Production - Water Based Mud
-If oil based, what type? Synthetic, petroleum, etc. Sy	nthetic
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 Lan	ndfill (Permit #SWF-1032-98), Northwestern Landfill (Permit # SWF-1025/WV0109410)
	las of any load of drill cuttings or associated waste rejected at any within 24 hours of rejection and the permittee shall also disclose
on August 1, 2005, by the Office of Oil and Gas of the West Vin provisions of the permit are enforceable by law. Violations of law or regulation can lead to enforcement action.  I certify under penalty of law that I have personally application form and all attachments thereto and that, based obtaining the information, I believe that the information is to penalties for submitting false information, including the possibility.	onditions of the GENERAL WATER POLLUTION PERMIT issued reginia Department of Environmental Protection. I understand that the Fany term or condition of the general permit and/or other applicable examined and am familiar with the information submitted on this of on my inquiry of those individuals immediately responsible for rue, accurate, and complete. I am aware that there are significant lity of fine or imprisonment.
Company Official Signature Gretchen Kohler	MAY 1 3 2021
Company Official (Typed Name) Gretchen Kohler	WV Department of
Company Official Title Senior Environmental & Regulatory Mana	ager Environmental Protection
Subscribed and sworn before me this day of My commission expires	Notary Public STATE OF COLORADO NOTARY ID 20184011666  NOTARY DESCRIPTION OF THE PUBLIC STATE OF COLORADO NOTARY ID 20184011666  NOTARY ID 20184011666

Form WW-9

Proposed Revegetation Treatment: Ac	res Disturbed 34.16 a	CI'es Prevegetation	рН
Lime 2-4 Tons			pi1
Fertilizer type Hay or straw or	-		
Fertilizer amount 500			
Mulch 2-3		s/acre	
	Tons/8		
Dettos IVau A (V.Vo aujes) + (		ad (17.00 acres) + Excess/Topsoil Material Stoc I Mixtures	kpile (10.30 acres)≔ 34.16 Acres
Temporary		Peri	manent
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 typ	ne (Gedd Ped Design)	See attached Table IV 44 for additi	onal seed type (Gadd Pad Design
	o (Cacci ac Design)	Ope attached Table 14-47 for additi	onai seed type (Gado Pad Design
*or type of grass seed requested  Attach:  Maps(s) of road, location, pit and proporovided). If water from the pit will be	by surface owner	*or type of grass seed req	uested by surface owner
*or type of grass seed requested Attach: Maps(s) of road, location, pit and proportion of the pit will be acreage, of the land application area. Photocopied section of involved 7.5' top	by surface owner  osed area for land application applied, include directory  oographic sheet.	*or type of grass seed req	uested by surface owner
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#### 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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Drilling Fluild Solvent - Aliphatic Hydrocarbon

14. Ligco

Highly Oxidized Leonardite - Filteration 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

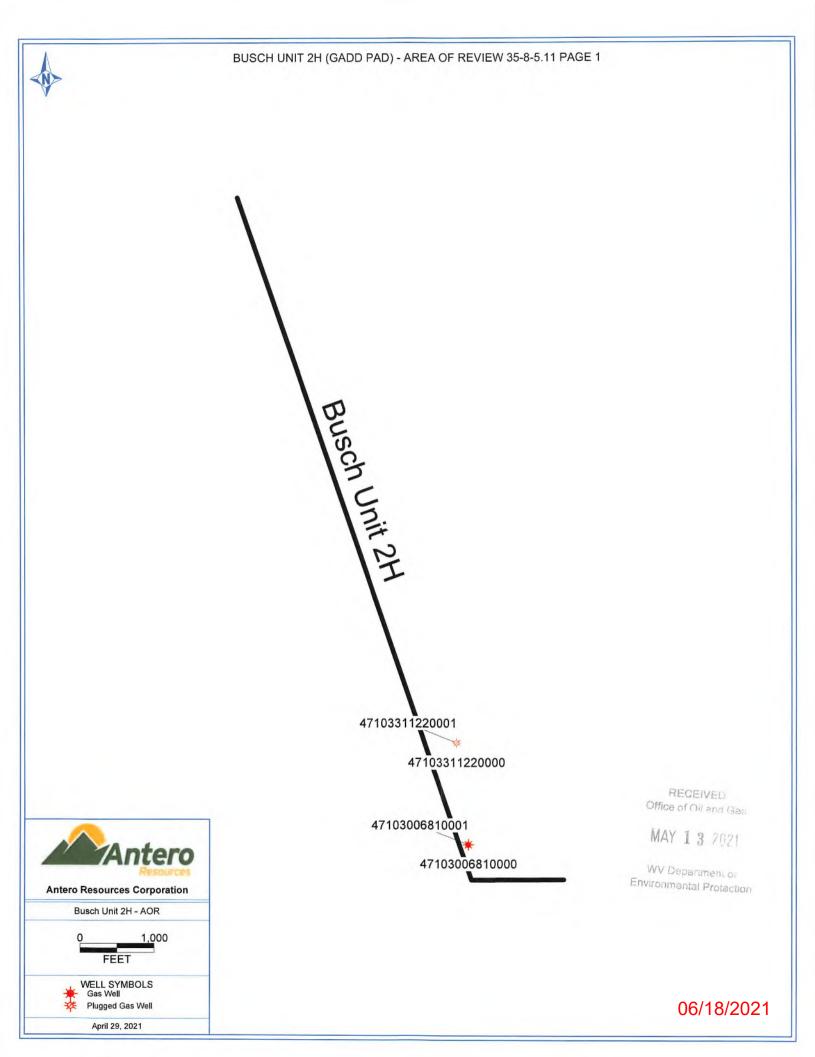
32. Mil-Lube

Drilling Fluid Lubricant

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911 Address 2946 Eight Mile Road Reader, WV 26167

# Well Site Safety Plan R.O. H Antero Resources 5:19:21

Well Name: Blake Unit 1H, Busch Unit 1H-3H, Charlotte Unit 1H-2H

Peeler Unit 1H-3H

Pad Location: GADD PAD

Wetzel County/Green District

**GPS Coordinates:** 

Entrance - Lat 39°32'48.30"/Long -80°45'08.74" (NAD83)

Pad Center - Lat 39°32'59.94"/Long -80°45'20.17" (NAD83)

## **Driving Directions:**

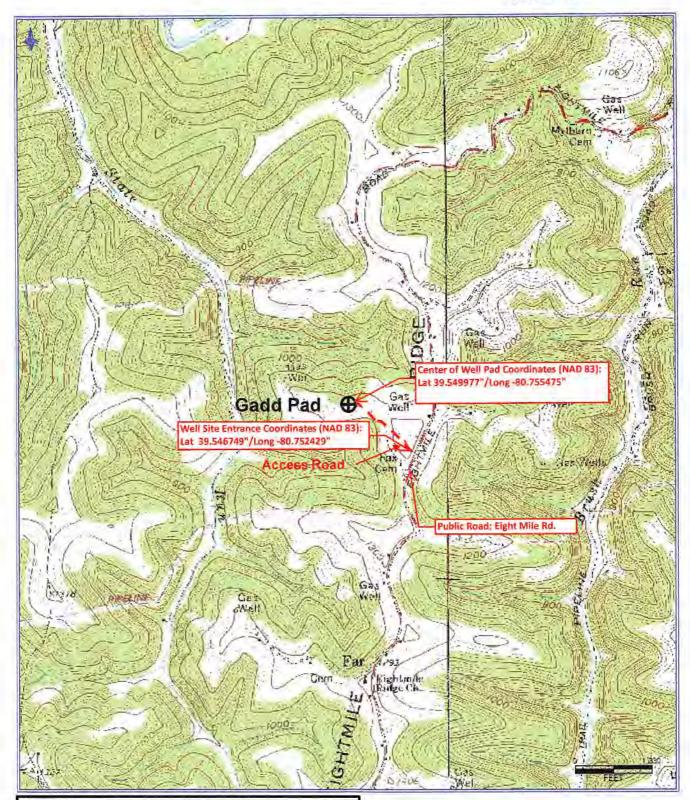
From Reader Fire Department: Head north on WV-20 N. toward Spice Lane for 0.5 miles. Turn left onto CO Rd/40/2 for 0.4 miles. Continue onto Eight Mile Road for 2.4 miles. Access road will be on your right.

## **Alternate Route:**

From Middlebourne Post Office: Turn left onto WV-18 N/Main Street for 3.8 miles. Turn right toward Elk Fork for 302 feet. Continue onto Elk Fork Road for 0.4 miles. Turn right onto Elk Fork Road for 9.6 miles. Turn left onto Wetzel Tyler Ridge Road for 0.6 miles. Continue onto Eight Mile Road for 1.7 miles. Access road will be on the left.

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

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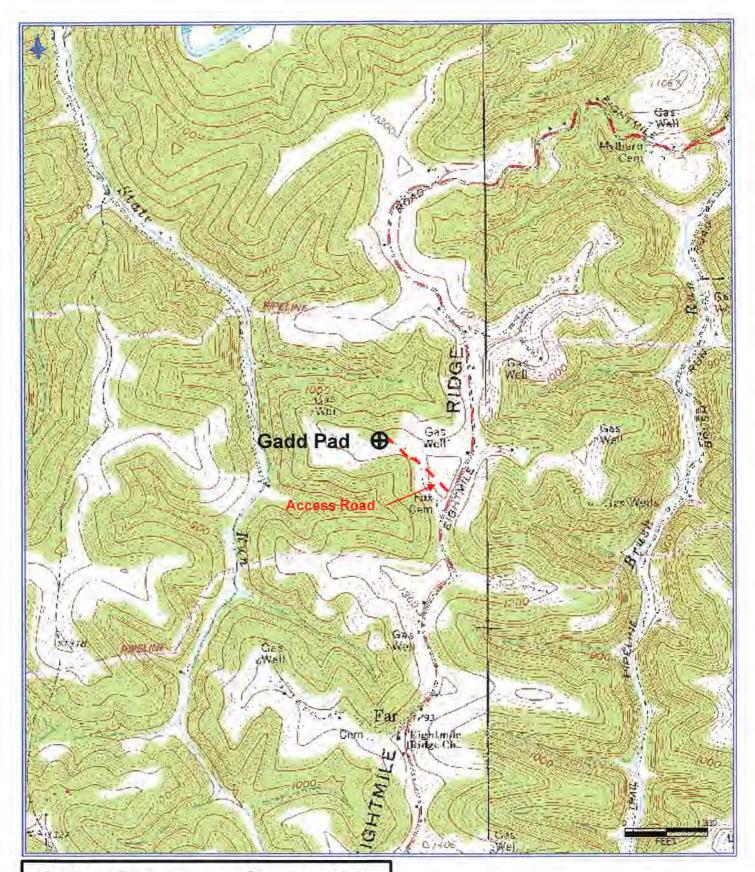


## **Antero Resources Corporation**

Appalachian Basin GADD PAD Wetzel County

Quadrangle: Porters Falls Watershed: Fishing Creek

District: Green Date: 5-3-2021



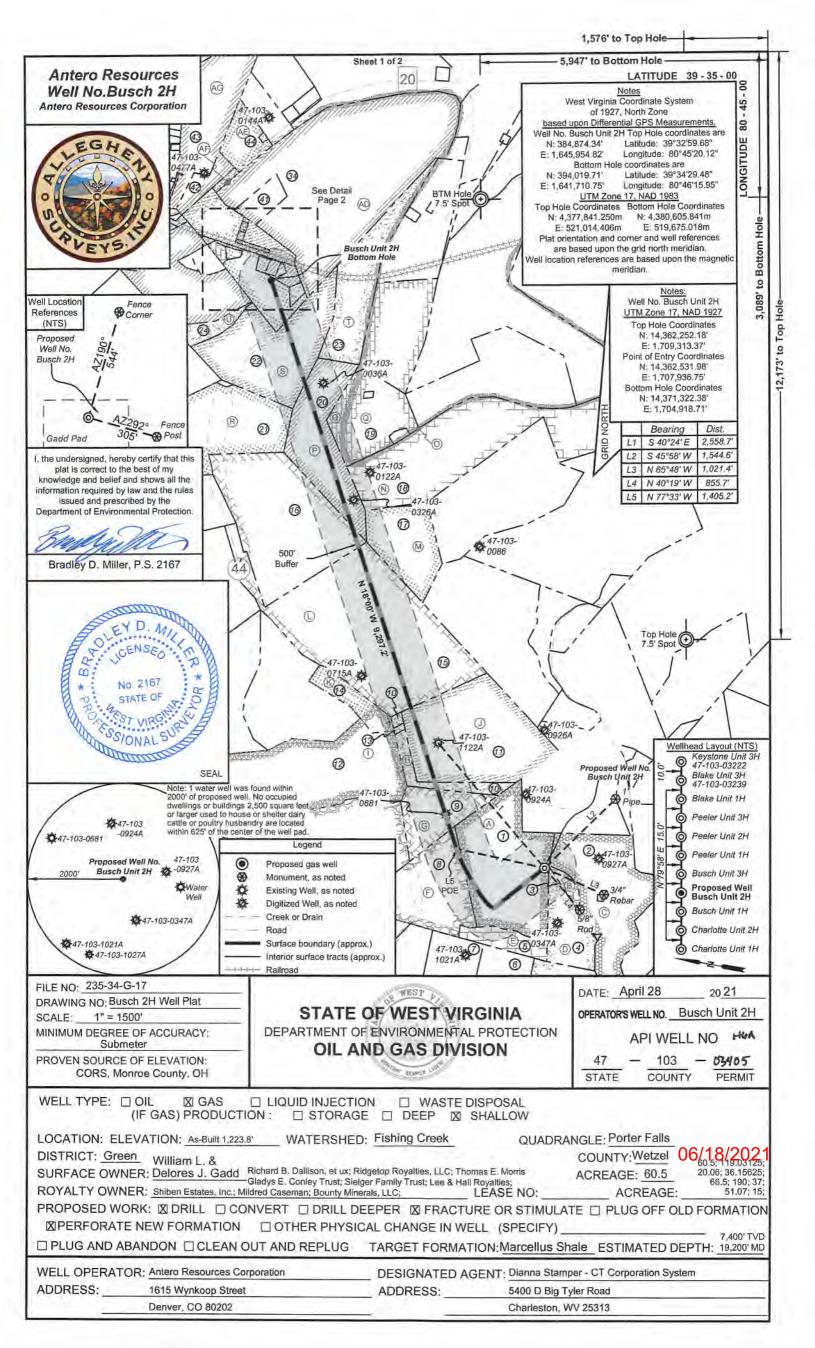
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Appalachian Basin GADD PAD Wetzel County

Quadrangle: Porters Falls Watershed: Fishing Creek

District: Green Date: 5-3-2021 MAY 1 3 2021

WV Decardment of Environmental Protection 06/18/2021

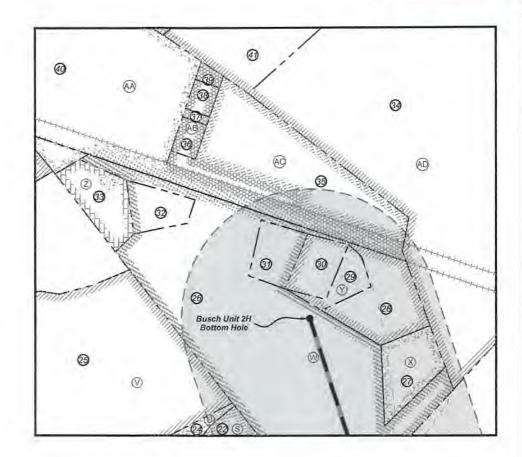


### Antero Resources Well No. Busch 2H

Antero Resources Corporation



	Leases
Α	Shiben Estates, Inc.
В	John W. Bertram
С	BRC Appalachian Minerals I LLC
D	Ellen W. & Mark L. VanDyne
E	Sandra Rose Conley
F	Gladys E. Conley Trust
G	Mildred Caseman
Н	Sielger Family Trust
1	Chesapeake Appalchia, LLC
J	Thomas E. Morris
K	Donald E. Dawson, et ux
L	Lee & Hall Royalties
M	Robert Wesley Ueltschy
N	Shiben Estates, Inc.
0	WV Division of Natural Resources
P	Richard B. Dallison, et ux
Q	Donald VanDyke
R	Paul H. Abel
S	Ridgetop Royalties, LLC
T	David E. Bowyer
U	Ridgetop Royalties, LLC
٧	Leslie A. Lively
W	Bounty Minerals, LLC
X	OPEN
Υ	Raymond P. Gaston, et ux
Z	Beulah I. Snider
AA	OPEN
AB	Raymond P. Gaston, et ux
AC	Raymond P. Gaston, et ux
AD	Richards Resources
AE	David E. Bowyer
AF	WV Division of Natural Resources
AG	SanDee Nieboer Stadley



ID	TM/Par	Owner	Bk/Pg	Acres	ID	TM/Par	Owner	Bk/Pg	Acres
1	16-22	William L. & Delores J. Gadd	348/169	60.50	23	12-31	Bruce Allen Lawhorne, et al	419/878	40.00
2	16-23	Kenneth E. Butler	331/110	50.97	24	12-27	Martin E. Rogers	363/413	3.08
3	16-31	William L. & Delores J. Gadd	348/169	2.65	25	12-18	Leslie A. Lively	387/229	39.63
4	16-30	William L. & Delores J. Gadd	348/169	14.00	26	12-20.1	Jerome E. II & Benita K. Staley	415/329	13.34
5	16-47	William M. Greenawalt & Lee A. Niezgoda	387/1	12.00	27 28	12-29	Jerome E. II & Benita K. Staley Jerome E. II & Benita K. Staley	415/329	1.50
6	16-39	Silas & William A. Tennant	WB27/97	23.30	29	12-28	Donnie L. Amett	415/329	2.05 0.56
7	16-38	Silas Tennant	137/85	15.50	30	12-22	Donnie L. Arnett	440/892	0.87
8	16-21	Mildred E. Caseman	WB45/396	40.00	31	12-21	Tammy J. Ueltschy	370/707	0.90
9	16-21.2	Mildred E. Caseman	WB45/396	20.06	32	12-20	Bonnie Ueltschy	WB70/248	
10	16-21.3	Mildred E. Caseman	WB45/396	12.00	33	12-19	Beulah I. Snider	WB45/396	
11	16-9	Richard A. & Susan L. Gardner	341/281	66.50	34	12-11	Timothy L. & Michael A. McDiffitt	385/189	131.34
12	16-8	Wilbur B. Dawson & Loretta P. Ueltschy	408/192	75.75	35	12-10	Charles & Wilda Lee Loy	299/009	4.85
13	16-21.4	Mildred E. Caseman	WB45/396	1.00	36	12-6	Robert D. & Catherine M. Loy	357/199	0.08
14	16-3.1	Donald E. & Carolyn L. Dawson	332/114	10.00	37	12-7	Robert D. & Catherine M. Loy	357/199	0.33
15	12-55	Bradley W. Ueltschy	330/37	100.00	38	12-8	Robert D. & Catherine M. Loy	357/199	0.27
16	12-49	John W. & Rosalie M. Ueltschey	362/403	86.55	39	12-9	Robert D. & Catherine M. Loy	357/199	0.16
17	12-41	Robert W. & Bradley W. Ueltschy	341/261	29.00	40	12-5	Columbia Gas Trans Corp.	263/164	11.70
18	13-27	Donald P. Vandyke & Mark L. Vandyke	TIGIZETI	123.80	41	12-11.1	Timothy L. & Tammy D. McDiffitt	431/389	6.66
19	12-42	Donald P. Vandyke & Mark L. Vandyke	410/241	29.65	42	12-4	Easterling Trust	446/376	7.16
20	12-50	Richard B. & Jaynee C. Dallison	399/288	37.00	43	7-53	Easterling Trust	446/376	32.98
21	12-39	Martin E. Rodgers	421/621	60.00	44	7-54	James Ronald Long	283/207	10.00
22	12-30	Martin E. Rogers	363/413	51.08	12.5				

FILE NO: 235-34-G-17

DRAWING NO: Busch 2H Well Plat

SCALE: 1" = 1500'

MINIMUM DEGREE OF ACCURACY: Submeter

PROVEN SOURCE OF ELEVATION: CORS, Monroe County, OH

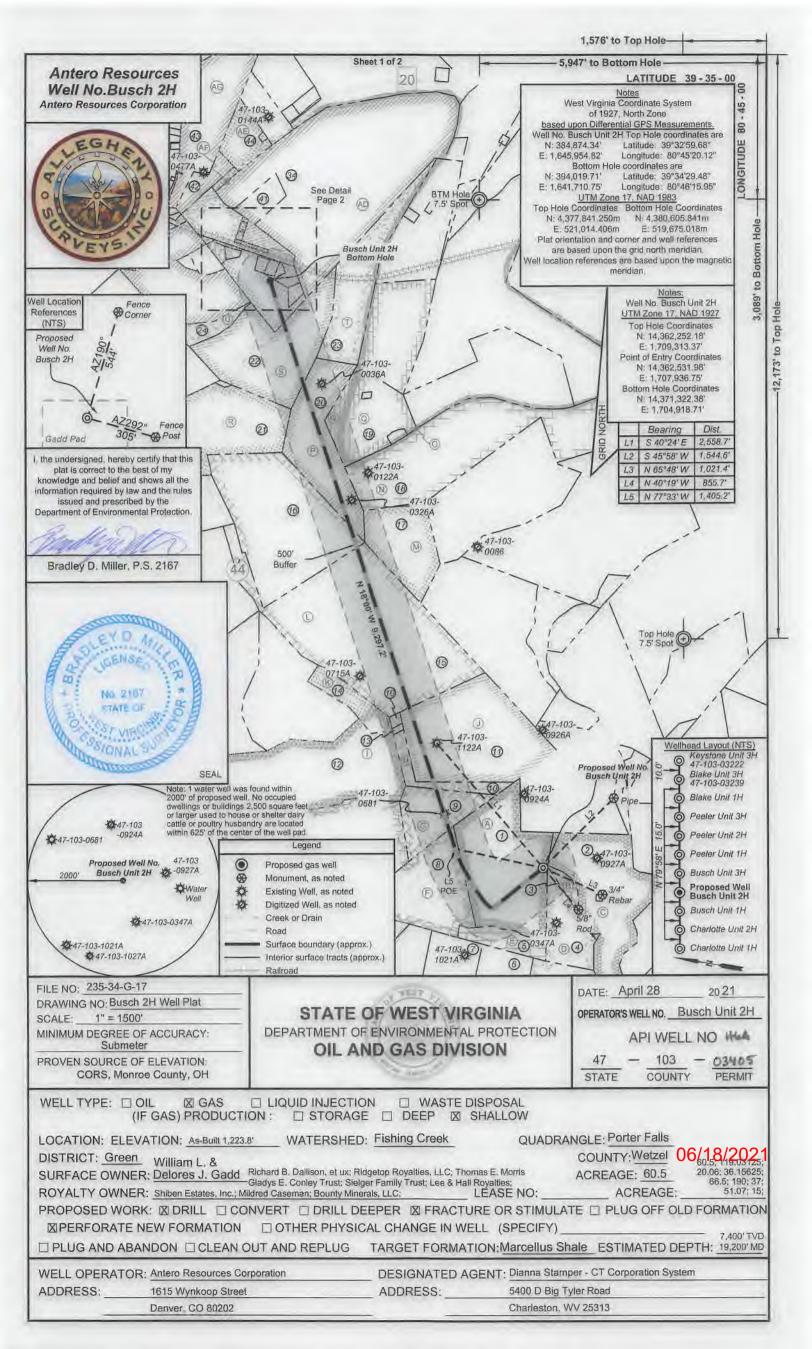
OF WEST STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION OIL AND GAS DIVISION

DATE: April 28 OPERATOR'S WELL NO. Busch Unit 2H

API WELL NO

103 PERMIT STATE COUNTY

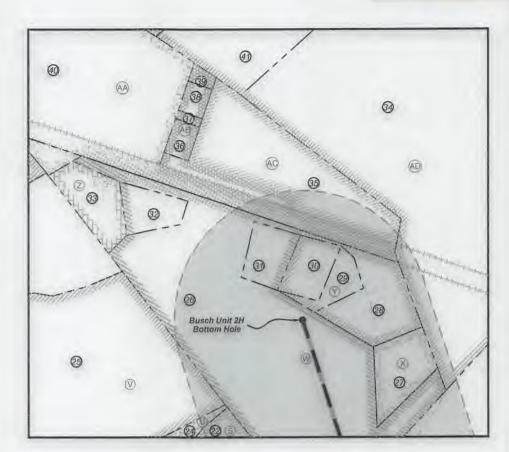
B P. T. C.	IID INJECTION ☐ WASTE D☐ STORAGE ☐ DEEP 🔯	DISPOSAL SHALLOW
DISTRICT: Green William L. & SURFACE OWNER: Delores J. Gadd Richard B. I Gladys E. C ROYALTY OWNER: Shiben Estates, Inc.; Mildred Caser PROPOSED WORK: DRILL CONVERT  MPERFORATE NEW FORMATION CONVERT	ionley I rust; Sielger Family Trust; Lee & Hall nan; Bounty Minerals, LLC;  DRILL DEEPER X FRACTU HER PHYSICAL CHANGE IN WE	Royalties; 66.5; 190; 37; LEASE NO: ACREAGE: 51.07; 15; JRE OR STIMULATE □ PLUG OFF OLD FORMATION
WELL OPERATOR: Antero Resources Corporation ADDRESS: 1615 Wynkoop Street	DESIGNATED AC	GENT: Dianna Stamper - CT Corporation System 5400 D Big Tyler Road
Denver, CO 80202		Charleston, WV 25313



Antero Resources Well No. Busch 2H Antero Resources Corporation



	Leases
A	Shiben Estates, Inc.
В	John W. Bertram
C	BRC Appalachian Minerals I LLC
D	Ellen W. & Mark L. VanDyne
E	Sandra Rose Conley
F	Gladys E. Conley Trust
G	Mildred Caseman
Н	Sielger Family Trust
1	Chesapeake Appalchia, LLC
J	Thomas E. Morris
K	Donald E. Dawson, et ux
L	Lee & Hall Royalties
M	Robert Wesley Ueltschy
N	Shiben Estates, Inc.
0	WV Division of Natural Resources
P	Richard B. Dallison, et ux
Q	Donald VanDyke
R	Paul H. Abel
S	Ridgetop Royalties, LLC
T	David E. Bowyer
U	Ridgetop Royalties, LLC
٧	Leslie A. Lively
W	Bounty Minerals, LLC
X	OPEN
Υ	Raymond P. Gaston, et ux
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5	40.47	William M. Greenawalt	207/4	40.00	27	12-29	Jerome E. II & Benita K. Staley	415/329	1.50
0	16-47	& Lee A. Niezgoda	387/1	12.00	28	12-28	Jerome E. II & Benita K. Staley	415/329	2.05
6	16-39	Silas & William A. Tennant	WB27/97	23.30	29	12-22.1	Donnie L. Arnett	440/892	0.56
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10	16-21.3	Mildred E. Caseman	WB45/396	12.00	33	12-19	Beulah I. Snider	WB45/396	1.3
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15	12-55	Bradley W. Ueltschy	330/37	100.00	38	12-8	Robert D. & Catherine M. Loy	357/199	0.27
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22	12-30	Martin E. Rogers	363/413	51.08					

FILE NO: 235-34-G-17

DRAWING NO: Busch 2H Well Plat

SCALE: \_\_ 1" = 1500'

MINIMUM DEGREE OF ACCURACY: Submeter

PROVEN SOURCE OF ELEVATION: CORS, Monroe County. OH

Denver, CO 80202

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

DATE: April 28 20 21 OPERATOR'S WELL NO. Busch Unit 2H

API WELL NO

47 - 103 STATE COUNTY

Charleston, WV 25313

DED	
PER	MII

WELL TYPE: ☐ OIL ☐ GAS ☐ LIQUID INJECTION (IF GAS) PRODUCTION : ☐ STORAGE	☐ WASTE DISPOSAL☐ DEEP ☒ SHALLOW	
DISTRICT: Green William L. & SURFACE OWNER: Delores J. Gadd Richard B. Dallison, et ux; Ridg	etop Royalties, LLC; Thomas E. Morris Family Trust; Lee & Hall Royalties;	ANGLE: Porter Falls  COUNTY: Wetzel  ACREAGE: 60.5  ACREAGE: 60.5  ACREAGE: 51.07; 15;
☑PERFORATE NEW FORMATION ☐ OTHER PHYSICA	L CHANGE IN WELL (SPECIFY)	ATE PLUG OFF OLD FORMATION 7,400' TVD hale ESTIMATED DEPTH: 19,200' MD
WELL OPERATOR: Antero Resources Corporation	DESIGNATED AGENT: Dianna Stan	- In the same

Operator's Well Number

Busch 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
A	Shiben Estates Inc. Lease Shiben Estates Inc.	Antero Resources Corporation	1/8+	0176/0467
F	Gladys E. Conley Trust Lease Gladys E. Conley Trust	Antero Resources Corporation	1/8+	0180/0443
G	Mildred Caseman Lease Mildred Caseman	Antero Resources Corporation	1/8+	0240/0093
H	Siegler Family Trust Lease Siegler Family Trust	Antero Resources Corporation	1/8+	0184/0070
7	<u>Thomas E. Morris Lease</u> Thomas E. Morris	Antero Resources Corporation	1/8+	0162/0479
L	<u>Lee &amp; Hall Royalties Lease</u> Lee & Hall Royalties	Antero Resources Corporation	1/8+	0246/0701
P	Richard B. Dallison et ux Lease Richard B. Dallison et ux	Antero Resources Corporation	1/8+	0253/0565
5	Ridgetop Royalties LLC Lease Ridgetop Royalties LLC	Antero Resources Corporation	1/8+	0231/0818

RECEIVED
Office of Oil and Gas

MAY 1 3 2021

WV Department of Environmental Protection

Operator's	Well No.	

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

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- (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
W	<b>Bounty Minerals LLC Lease</b>	Bounty Minerals LLC	Antero Resources Corporation	1/8+	0251/0587

\*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.

\*Co-tenancy utilization – At least 7 mineral owners in tract. At least 75% of the royalty owners have executed a lease on the tract. The interests of the remaining co-tenants were acquired pursuant to the Co-tenancy Modernization and Majority Protection Act

Well Operator:		0	Office of Oil and Ges
By:	Tim Rady	Can Vedr	1202 E I YAW
Its:	VP of Land	1	WV Department of
			Environmental Protection

Page 1 of 1

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

RE: Busch Unit 2H

Quadrangle: Porters Falls 7.5'

Wetzel County/Green District, West Virginia

#### Mr. Martin:

Antero Resources Corporation (Antero) is submitting the following application for a new well work permit for the Busch Unit 2H 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 Busch Unit 2H horizontal lateral will drill through including any and all roads crossed under as identified on the attached survey plat.

Sincerely,

Tom Kuhn Senior Landman

RECEIVED
Office of Oil and Gas

MAY 1 3 2021

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

Date of Notic	ce Certification: 5   b   2	<b>API No.</b> 47- 103	
	701	Operator's Well No. B	usch Unit 2H
	•	Well Pad Name: Gado	l Pad
Notice has b	been given:	· ·	
Pursuant to th	ne provisions in West Virginia Code §	22-6A, the Operator has provided the required partie	s with the Notice Forms listed
	tract of land as follows:		
State:	West Virginia	UTM NAD 83 Easting: 521014.406m	
County:	Wetzel	Nortning: 437/841.2501	
District:	Green	Public Road Access: Eightmile Roa	
Quadrangle:	Porters Falls 7.5'	Generally used farm name: William L. & D	elores J. Gadd
Watershed:	Lower Fishing Creek		
of giving the requirements Virginia Codo of this article	of subsection (b), section sixteen of e § 22-6A-11(b), the applicant shall to have been completed by the applicant	ction sixteen of this article; (ii) that the requirement we rever pursuant to subsection (a), section ten of this af this article were waived in writing by the surface ender proof of and certify to the secretary that the not t.  erator has attached proof to this Notice Certification	article six-a; or (iii) the notice owner; and Pursuant to West
	erator has properly served the required		OOG OFFICE USE
*PLEASE CH	ECK ALL THAT APPLY		ONLY
☐ 1. NO	TICE OF SEISMIC ACTIVITY or	■ NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED	☐ RECEIVED/ NOT REQUIRED
☐ 2. NO	TICE OF ENTRY FOR PLAT SURV	TEY or   NO PLAT SURVEY WAS CONDUCTED	P RECEIVED
■ 3. NO	TICE OF INTENT TO DRILL or	☐ NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or	☐ RECEIVED/ NOT REQUIRED
		WRITTEN WAIVER BY SURFACE OWNER  (PLEASE ATTACH) RECEIVED  Office of Oil and Gas.	<b>X</b>
■ 4. NO	TICE OF PLANNED OPERATION	MAY 1 3 2021	☐ RECEIVED
■ 5. PUI	BLIC NOTICE	WV Department o:	☐ RECEIVED
■ 6. NO	TICE OF APPLICATION	Environmental Protection	RECEIVED

#### **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.

WW-6AC (1/12)

#### 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: Antero Resources Corporation

By: Tim Rady

Its: VP of Land

Telephone: 303-357-7310

Address: 1615 Wynkoop Street

Denver, CO 80202

Facsimile: 303-357-7315

Email: mgriffith@anteroresources.com

NOTARE A NIGHT FITH

NOTARY PUBLIC STATE OF COLORADO NOTARY ID 20184011666

Diana 1

MY COMMISSION EXPIRES MARCH 13, 2022

Subscribed and sworn before me this

Notary Public

My Commission Expires

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 <a href="mailto:deprivacyofficer@wv.gov">deprivacyofficer@wv.gov</a>.

RECEIVED Office of Oil and Gas

MAY 1 3 2021

WV Department of Environmental Protection

API NO. 47-OPERATOR WELL NO. Busch Unit 2H Well Pad Name: Gadd Pad

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

Noti	ice Time Requireme	ent: notice shall be provid	led no later than	the filing date of permit applic	ation.
	571	71	51-	1 12 (	
Date	e of Notice	Date Permit Applicati	ion Filed:	1 21	
Noti	ice of:				
✓	PERMIT FOR AN	Y L CERTIFIC	CATE OF APPR	OVAL FOR THE	
	WELL WORK	CONSTR	UCTION OF A	N IMPOUNDMENT OR PIT	
D.11		and to West Visualists Co	J= 0 22 64 100	63	
Dell	very method pursu	ant to West Virginia Co	de § 22-6A-10()	0)	
	PERSONAL	REGISTERED	✓ METHO	D OF DELIVERY THAT REQU	JIRES A
	SERVICE	MAIL	RECEIP	T OR SIGNATURE CONFIRM	ATION
oil a desc oper more well impe have prov prop subs reco prov Cod	and gas leasehold being tribed in the erosion at ator or lessee, in the ele coal seams; (4) The work, if the surface to be a water well, spring tride water for consumposed well work activities of the sheriff requision of this article to e. R. § 35-8-5.7.a requision of the sheriff requision of the sheriff requision of the saction of th	g developed by the propose and sediment control plan survent the tract of land on we owners of record of the survent is to be used for the place of the seribed in section nine of the place of the seribed in section nine of the place of the seribed in section of the place of the seribed in section of the seribed in section of the series	ed well work, if to ubmitted pursuant thich the well pro- rface tract or trac- acement, constru- his article; (5) An ated within one that tic animals; and ( f more than three ands, the applicant uant to section ei- en holder is not re- ator shall also pro-	to surface tract is to be used for rout to subsection (c), section seven of posed to be drilled is located [sic] at soverlying the oil and gas leasehotion, enlargement, alteration, repay surface owner or water purveyo nousand five hundred feet of the co (6) The operator of any natural gas tenants in common or other co-ow may serve the documents required ght, article one, chapter eleven-a cotice to a landowner, unless the lie	of this article; (3) The coal owner, is known to be underlain by one or old being developed by the proposed air, removal or abandonment of any or who is known to the applicant to enter of the well pad which is used to a storage field within which the vners of interests described in d upon the person described in the of this code. (2) Notwithstanding any en holder is the landowner. W. Va. WSSP") to the surface owner and any
				☑Well Plat Notice is hereby	
DI SI	URFACE OWNER(s	1		☐ COAL OWNER OR LESSEE	
	ne: William L. Gadd	/		Name: NO DECLARATIONS ON RECO	
	iress: 151 Loretta Avenue		-	Address:	<u> </u>
1100	Follansbee, WV 2603		-		HEGEIVEC
Nan	ne: Kenneth Eric Butler		-0	COAL OPERATOR	Office of Oil and Gre-
	ress: 1078 Bethany Pike			Name:	
	Wellsburg, WV 26070			Address:	MAY 1 3 2021
IZI SI		(Road and/or Other Dis	turbance)		
	ne; William L. Gadd	, , , , , , , , , , , , , , , , , , , ,		MATER PURVEYOR(s)/OWNER(s)	OF WATER WELL LIGGERMAN OF LY SOURCE ENVIORMENTS PROTECTION
	iress: 151 Loretta Avenue			SPRING OR OTHER WATER SUPP	LY SOURCE
	Follansbee, WV 2603			Name: NONE IDENTIFIED WITHIN 150	
Nan	ne: Kenneth Eric Butler			Address:	
	ress: 1078 Bethany Pike			7 2 7 2 7 2 7 2 7 2 7 2 7 2 7 2 7 2 7 2	
	Wellsburg, WV 260	70	5	OPERATOR OF ANY NATU	RAL GAS STORAGE FIELD
□ S1		(Impoundments or Pits)			
Nan				Name:Address:	
				Addices.	
7100	11003.		-	*Please attach additional forms i	fnecessary
_				. reade attach additional follifs i	i necessui y

API NO. 47OPERATOR WELL NO. Busch Unit 2H
Well Pad Name: Gadd Pad

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 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting <a href="https://www.dep.wv.dep.wv.gov/bit21/21">www.dep.wv.dep.w

#### Well Location Restrictions

WV (Japenmento) Envicoumental Protection

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

API NO. 47OPERATOR WELL NO. Busch Unit 2H
Well Pad Name: Gadd 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 57<sup>th</sup> St. SE
Charleston, WV 25304
(304) 926-0450

MAY 1 3 2021

WV Department of Environmental Protection

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.** 

API NO. 47-\_\_\_OPERATOR WELL NO. Busch Unit 2H

Well Pad Name: Gadd Pad

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 <a href="http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx">http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx</a> 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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AV Deptitings of environmental Protection

API NO. 47-\_\_\_\_OPERATOR WELL NO. Busch Unit 2H
Well Pad Name: Gadd Pad

Notice is hereby given by:

Well Operator: Antero Resources Corporation

Telephone: (303) 357-7310 Diana O. Hoff

Email: mgriffith@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 <a href="deepprivacyofficer@wv.gov">deepprivacyofficer@wv.gov</a>.

MEGAN GRIFFITH NOTARY PUBLIC STATE OF COLORADO NOTARY ID 20184011666

MY COMMISSION EXPIRES MARCH 13, 2022

Subscribed and sworn before me this

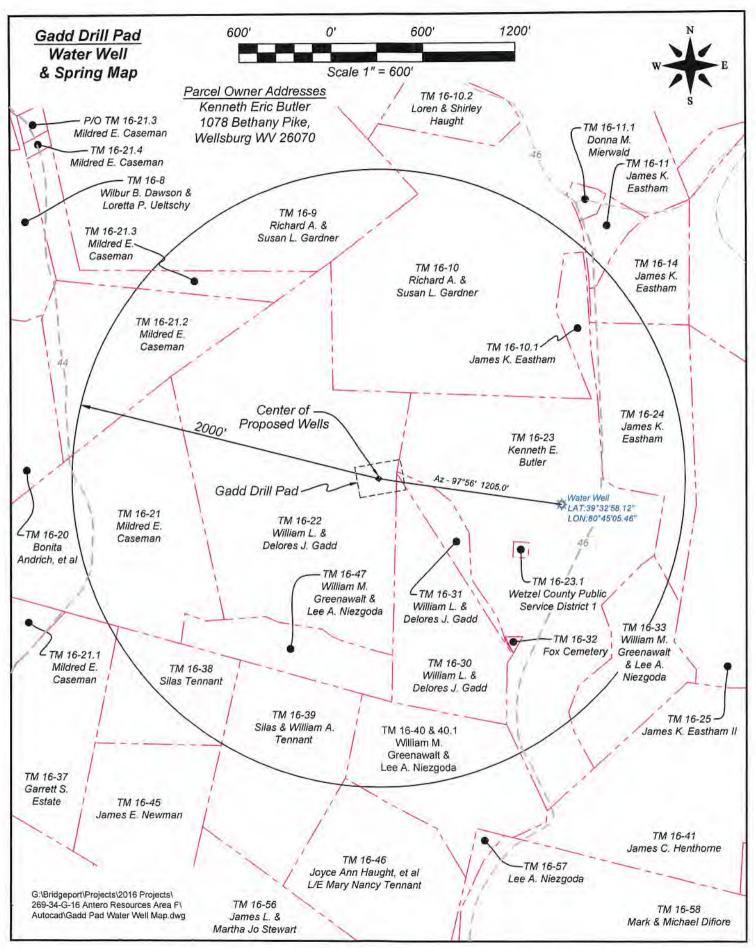
Notary Public

My Commission Expires\_

RECEIVED
Office of Oil and Gay

MAY 1 3 2021

WV Department of Environmental Protection



WW-6A4 (1/12) Operator Well No. Busch Unit 2H

Multiple Wells on Gadd Pad

# 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.

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, receipt requested or hand delivery, give the surface owner notice of its intent to enter upon the drilling a horizontal well: Provided, That notice given pursuant to subsection (a), section to of this subsection as of the date the notice was provided to the surface owner: Provided, how	, an operator shall he surface owner' en of this article s wever, That the no	, by certified mail return 's land for the purpose of
Pursuant to W. Va. Code § 22-6A-16(b), at least ten days prior to filing a permit application receipt requested or hand delivery, give the surface owner notice of its intent to enter upon the drilling a horizontal well: <i>Provided</i> , That notice given pursuant to subsection (a), section to of this subsection as of the date the notice was provided to the surface owner: <i>Provided</i> , how	he surface owner' en of this article s wever, That the no	s land for the purpose of
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And if available, facsimile number and electronic mail address of the operator and the operator  Notice is hereby provided to the SURFACE OWNER(s):  Name: William L. Gadd Name: Kenneth Eric Butl	or's authorized rep	otice requirements of this dress, telephone number,
Address: 151 Loretta Avenue Address: 1078 Bethany Pike	1)	RECEIVED
Follansbee, WV 26037 Wellsburg, WV 260		Tiffice of Oil and Ga
Pursuant to West Virginia Code § 22-6A-16(b), notice is hereby given that the undersigned the surface owner's land for the purpose of drilling a horizontal well on the tract of land as for State:  West Virginia  UTM NAD 83  Easting:		WV Department of Environmental Probable
County: Wetzel Northing:	4277044 250m	
Dietrict: Green Dublic Pond Accord	4377841.250m	
District: Green Public Road Access:  Ouadrangle: Porters Falls 7.5" Generally used farm name:	Eightmile Road	I Gadd
Quadrangle: Porters Falls 7.5' Generally used farm name:	1	J. Gadd
Quadrangle: Porters Falls 7.5' Generally used farm name: Watershed: Lower Fishing Creek  This Notice Shall Include: Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, add facsimile number and electronic mail address of the operator and the operator's authorize related to horizontal drilling may be obtained from the Secretary, at the WV Department of	Eightmile Road William L. & Delores  ress, telephone need representative of Environmental	umber, and if available,  Additional information Protection headquarters,
Quadrangle: Porters Falls 7.5' Generally used farm name: Watershed: Lower Fishing Creek  This Notice Shall Include: Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, add facsimile number and electronic mail address of the operator and the operator's authoriz related to horizontal drilling may be obtained from the Secretary, at the WV Department of located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.d	ress, telephone ned representative of Environmental	umber, and if available,  Additional information Protection headquarters,
Quadrangle: Porters Falls 7.5' Generally used farm name:  Watershed: Lower Fishing Creek  This Notice Shall Include:  Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, add facsimile number and electronic mail address of the operator and the operator's authorize related to horizontal drilling may be obtained from the Secretary, at the WV Department of located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.d.  Notice is hereby given by:  Well Operator: Antero Resources Corporation  Authorized Representative.	ress, telephone need representative of Environmental ep.wv.gov/oil-and	umber, and if available, Additional information Protection headquarters, A-gas/pages/default.aspx.
Quadrangle: Porters Falls 7.5' Generally used farm name:  Watershed: Lower Fishing Creek  This Notice Shall Include:  Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, add facsimile number and electronic mail address of the operator and the operator's authorize related to horizontal drilling may be obtained from the Secretary, at the WV Department of located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.d  Notice is hereby given by:  Well Operator: Antero Resources Corporation Authorized Representative Address: 1615 Wynkoop Street Address:	Eightmile Road William L. & Delores  ress, telephone ned representative of Environmental ep.wv.gov/oil-and  Megan Griffith 1615 Wynkoop St	umber, and if available, . Additional information Protection headquarters, L-gas/pages/default.aspx.
Quadrangle: Porters Falls 7.5' Generally used farm name:  Watershed: Lower Fishing Creek  This Notice Shall Include: Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, add facsimile number and electronic mail address of the operator and the operator's authoriz related to horizontal drilling may be obtained from the Secretary, at the WV Department of located at 601 57 <sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.d  Notice is hereby given by:  Well Operator: Antero Resources Corporation Authorized Representative Address:  Denver, CO 80202	ress, telephone ned representative of Environmental ep.wv.gov/oil-and  Megan Griffith  1615 Wynkoop St Denver, CO 80202	umber, and if available, . Additional information Protection headquarters, L-gas/pages/default.aspx.
Quadrangle: Porters Falls 7.5' Generally used farm name:  Watershed: Lower Fishing Creek  This Notice Shall Include: Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, add facsimile number and electronic mail address of the operator and the operator's authorize related to horizontal drilling may be obtained from the Secretary, at the WV Department of located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.d  Notice is hereby given by:  Well Operator: Antero Resources Corporation Authorized Representative Address:  Denver, CO 80202  Telephone: 303-357-7310  Telephone:	ress, telephone need representative of Environmental ep.wv.gov/oil-and  Megan Griffith 1615 Wynkoop St Denver, CO 80202	umber, and if available, . Additional information Protection headquarters, d-gas/pages/default.aspx.
Quadrangle: Porters Falls 7.5' Generally used farm name:  Watershed: Lower Fishing Creek  This Notice Shall Include: Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, add facsimile number and electronic mail address of the operator and the operator's authorize related to horizontal drilling may be obtained from the Secretary, at the WV Department of located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.d.  Notice is hereby given by:  Well Operator: Antero Resources Corporation Authorized Representative Address:  Denver, CO 80202	ress, telephone ned representative of Environmental ep.wv.gov/oil-and  Megan Griffith  1615 Wynkoop St Denver, CO 80202	umber, and if available, . Additional information Protection headquarters, l-gas/pages/default.aspx.

#### 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 <a href="deprivacvofficer@wv.gov">deprivacvofficer@wv.gov</a>.

WW-6A5 (1/12)

Operator Well No. Busch Unit 2H

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

		0 1 0 22 /	(1.10)			
Delivery meti	hod pursuant to West Virginia	Code § 22-6	0A-10(C)			
CERTIF	FIED MAIL	☐ HA	AND			
RETUR	N RECEIPT REQUESTED	DI	ELIVERY			
return receipt the planned of required to be drilling of a had damages to the (d) The notice of notice.	V. Va. Code § 22-6A-16(c), no requested or hand delivery, give peration. The notice required by provided by subsection (b), sect norizontal well; and (3) A propose surface affected by oil and gas as required by this section shall be by provided to the SURFACE a listed in the records of the sherj	the surface of by this subsetion ten of this osed surface operations to be given to the	owner whose land ection shall includ is article to a surfa use and compensate the extent the daine surface owner a	will be used for the control of the	or the drilling of of this code se e land will be u t containing an pensable under	f a horizontal well notice of ection; (2) The information used in conjunction with the offer of compensation for article six-b of this chapter
Name: William L					1	Miller T O
Name: william L	. Gadd	7.02.020,0310	Name: K	enneth Eric Butler		
			Name: K	enneth Eric Butler : 1078 Bethany Pike	/	TALLA PROGRAMMA
Address: 151 L Follansbee, WV 26  Notice is hero Pursuant to W	oretta Avenue 5307 Peby given: 'est Virginia Code § 22-6A-16(c	), notice is he	Name: Maddress  Wellsburg ereby given that th	: 1078 Bethany Pike . wv 26070 e undersigned v	well operator ha	
Address: 151 L Follansbee, WV 20 Notice is here Pursuant to W operation on State:	eby given:  est Virginia Code § 22-6A-16(c) the surface owner's land for the	), notice is he	Name: Maddress  Wellsburg ereby given that th	e undersigned well on the tra	well operator ha act of land as fol 521014.406m	Environmental Protections as developed a planned
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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.

API NO. 47- 103 OPERATOR WELL NO. Busch Unit 2H
Well Pad Name: Gadd 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

State:	West Virginia	UTM NAD 83 Easting:	521014.406m	
County:	Wetzel	Northing:		
District:		Public Road Access:	Eightmile Road	
Quadrangle: Watershed:	Porters Falls 7.5'  Lower Fishing Creek	Generally used farm name:	William L. & Delores J. Gadd	
		FOR EXECUT	ION BY A NATURAL PERSON	
*Please check	the box that applies	FOR EXECUT	ION RV A NATURAL PERSON	
C SUBFAC	CE OWNER		Carried Control of the second	
D SOM A	CE OWNER	Signature:		
☐ SURFAC	CE OWNER (Road and/or Other Disturbance)		RECEIVA	
		200000		
☐ SURFAC	CE OWNER (Impoundments/Pits)			
		FOR EXECUT	ION BY A CORPORATION, ETC.	
□ COAL C	OWNER OR LESSEE	FOR EXECUT Company:	ION BY A CORPORATION, ETC.	
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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 <a href="deprivacyofficer@wv.gov">deprivacyofficer@wv.gov</a>.



## WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

## **Division of Highways**

Byrd E. White, III Secretary of Transportation/ Commissioner of Highways 1900 Kanawha Boulevard East • Building Five • Room 110 Charleston, West Virginia 25305-0430 • (304) 558-3505

Jimmy Wriston, P. E. Deputy Secretary/ Deputy Commissioner

April 29, 2021

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

Subject: DOH Permit for the Gadd Pad, Wetzel County
Busch Unit 2H Well Site

RECEIVED Office of Oil and Ga.

MAY 1 8 2021

WV Department of Environmental Protection

Dear Mr. Martin,

This well site will be accessed from a DOH permit #06-2018-0045 which has been issued to Antero Resources for access to the State Road for a well site located off Wetzel County Route 46 SLS MP 2.55.

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: Megan Griffith Antero Resources CH, OM, D-6 File

# List of Anticipated Additives Used for Fracturing or $0.3 \ 0.3 \ 4.0 \ 5$ 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 RECEIVE	
Sillica, crystalline quartz	7631-86-9	id Gas
Sodium Chloride	7647-14-5 MAY 1 3 2	2021
Sodium Hydroxide	1310-73-2	
Sugar	<b>57-50-1</b> WV Departme	eni o <i>i</i>
Surfactant	68439-51-0 Environmental Pro	rotection
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	
Hexamthylene 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	

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WATER CONTAINMENT PAD GREEN DISTRICT COUNTY, WEST VIRGINIA

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MEST VIRGINIA COUNTY MAP

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1-800-245-4848 West Virginia State Law

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> SELICE: (303) 303-9158 CETT: (303) 900-5453 JOH MCEVERS - OPERATIONS SUPERINTENDENT

> OLLEC (200) 945-4088 CEIT (204) 446-9440

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PROJECT CONTACTS:

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NOT RESPONSIBLE FOR ANY CHANGES MADE TO THE SITE AFTER THE ABOVE MENTIONED DATES ELAYT CHYDING OF THE DESTREED AREA OF NOVEMBER IN SHIR WARTERS RECHIRERING TO THE TAS BUILT INFORMATION SHOWN HEREON RESPECTS REEL DATA COLLEGED REPAIRED TO THE

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## GADD WELL PAD & WATER CONTAINMENT PAD

TOMER FISHING CREEK & UPPER FISHING CREEK WATERSHED GREEN DISTRICT, WETZEL COUNTY, WEST VIRGINIA

ILS THE LAW!! Requires that you call two business days before you dig in the state of West Virginia. Tr's THE IAM (Section XIV Chapter 24-C) MISS Utility of West Virginia

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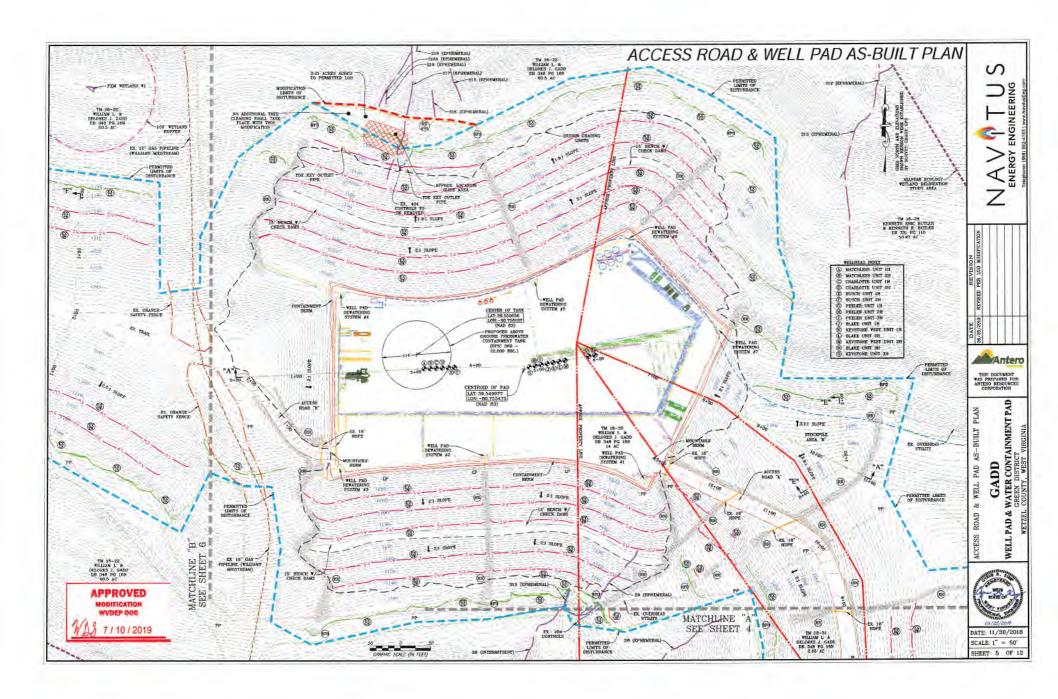
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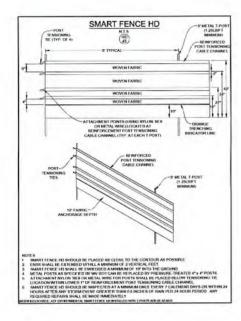
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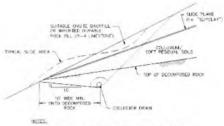
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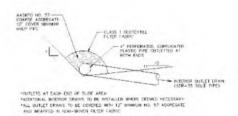






COLLECTOR DRAIN TO BE OUTLETTED AT BOTH DIGG AND AS DEEMED HECESSARY BY THE COTTOCHNICAL ENGINEER AND/OR AN EXPERIENCED SOIL TECHNICIAN/INSPECTOR.





COLLECTOR DRAIN DETAIL





THIS DOCUMENT WAS PREPARED FOR: ANTERO RESOURCES CORPORATION

CONSTRUSTION DETAILS GADD

WELL PAD & WATER CONTAINMENT PAD



DATE: 11/30/2018 SCALE: AS SHOWN SHEET II OF 12

LOCATION COORDINATES:

ACCESS ROAD "A" ENTRANCE LATITUDE: 39.546749 LONGITUDE: -80.752428 (NAD 83) N. 4377482.08 E 521271.08 (UTM ZONE 17 NETERS)

CENTER OF TANK LATITUDE: 38.550320 LONGITUDE: -80.754914 (NAD 81) N 43771577.78 E 52:057.04 (UTM ZONE 17 METERS)

CENTROID OF PAD LATITUDE: 39.549803 LONGITUDE: -80.755603 (MAD 83) N 4377640.22 E 520987.98 (UTN ZONE 17 METERS)



GENERAL DESCRIPTION:
THE ACCESS ROADS, WATER CONTAINMENT PAD, AND WELL PAD ARE BEING CONSTRUCTED TO AND IN
THE DEVELOPMENT OF ROTURNAL MARCHLUS SHALE GAS WELLS

FLOODPLAIN NOTES:
THE PROPOSED SITE IS LOCATED IN PLOOD ZONES "X" PER FEMA WAY NUMBERS 454103C0175C.

MISS\_UTILITY\_STATEMENT:
ANTERO RESOURCES CORPORATION WILL NOTIFY MISS UTILITY OF WEST VIRGINIA FOR THE LOCATING OF
UTILITIES PRIOR TO THE PROJECT DESIGN. IN ADDITION, MISS\_UTILITY WILL BE CONTACTED BY THE
CONTRACTOR FROM TO THE STREET OF CONSTRUCTION FOR THIS PROJECT.

#### ENTRANCE PERMIT

ANTERO RESOURCES CORPORATION WILL DETAIN AN ENCROACHMENT PERMIT (FORM MM-100) FROM THE WAST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS, PRIOR TO COMMUNICEMENT OF CONSTRUCTION ACTIVITIES.

ENVIRONMENTAL NOTES:
STREAM AND RETEASE BUILDANTONS WERE PERFORMED BETWEEN AUGUST 5, 2017 & AUGUST 11, 2017
FO STGE REVIOLATION OF THE PERFORMENT STEEL FOR WATERS AND WELLANDS THAT ARE
MOST LIKELY WITHIN THE REGULATORY PURVIEW OF THE U.S. ARMY CORPS OF ENGINEERS (USAGE)
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POPULATION OF THE DELINEATION SHOWN ON THIS EXHIRT PRIOR TO REMAINING CONSTRUCTION OF THE PEDERAL AND/OR STATE REGULATORY AGENCIES PRIOR TO ANY PROPOSED IMPACTS TO WATERS OF THE U.S., INCLUDING WELLAND FILLS AND STREAM CROSSINGS.

GEOTECHNICAL NOTES:
A SUBSURFACE INVESTUATION OF THE PROPOSED SITE WAS PERFORMED BY FENNSYLMANIA SOIL A ROCK, INC. BETYPECH DECEMBER 12 & DECEMBER 22, 2017. THE REPORT PREPARED BY PENNSYLMANIA SOIL & BOCK, INC. DATEJ MARIUMY 22, 2016, REPORTENT STHE REQUISIT OF THE SUBSURFACE SYMPSTICATION. THE INTURBATION AND REPORT SERVICE STREET IN THE SUBSURFACE SYMPSTICATION OF THESE PLANS PLANS PERFORT IN THE SUBSURFACE NYESTIGATION REPORT BY PENNSYLMANIA SOIL & BOCK, INC. FOR ADDITIONAL DYTORIALTION, AS NEEDED.

#### PROJECT CONTACTS:

## OPERATOR: AMTERO RESOURCES CORPORATION 505 WHITE OAKS 10.VD. BENDGEPORT, W 26330 PHONZ: (304) 842-4100 FAX: (304) 842-4100

ELI WAGONER - ENVIRONMENTAL ENGINEER OFFICE (304) 842-4058 CFIL (304) 476-9770

IDN MCEVERS - DPERATIONS SUPERINTENDENT OFFICE: (203) 357-6799 CELL: (203) 808-2423

AARON KUNZLER - CONSTRUCTION SUPERVISOR CELL: (405) 227-8344

ROBERT B. WIRKS - FIELD ENGINEER OFFICE: (304) 842-4100 CELL: (394) 627-7405

CHARLES E. COMPTON, III - SURVEYING COORDINATOR

JIN WILSON - LAND AGENT OFFICE (304) 842-4419 CELL (304) 671-2705

ENGINEER/SURVEYOR.
RAVITUS ESGINEERING, INC.
CYRUS S. KUMP, PE - PROJECT MANAGER/ENGINEER
OFFICE (868) 682-4185 CELL (540) 688-5747

ENVIRONMENTAL: SRCA ENVIRONMENTAL CONSULTANTS, INC IVAN J. MALDONADO — ENVIRONMENTAL SPECIALIST OTTICE (412) 839-1001 CELL: (570) 778-5786

GEOTECHNICAL:
PENNSYLVANIA SOIL & ROCK, INC.
CHRISTOPHER & SAMIOS - PROJECT ENGINEER
OFFICE: (412) 372-4000 CELL: (412) 560-0662

- RESTRICTIONS NOTES:

  1. THERE ARE NO PREENNAL STREAMS, WETLANDS, LAKES, POMDS, OR RESERVOIRS WITHIN 100 FEET OF THE WELL, PAD AND LOD.
- THERE ARE NO KATURALLY PRODUCING TROUT STREAMS WITHIN 300 FEST OF THE WELL PAD AND LOD.
- THERE ARE NO GROUNDWATER INTAKE OR PUBLIC WATER SUPPLY FACILITIES WITHIN 1000 FEST OF THE WELL PAG AND LOG. THERE ARE NO APPARENT EXISTING WATER WELLS OR DEVELOPED SPRINGS WITHIN 250
- FRET OF THE WELL(S) BEING DRILLED.
- THERE ARE NO OCCUPIED DWELLING STRUCTURES WITHIN 625 FEET OF THE CENTER OF THE WELL PAR.
- THERE ARE NO AGRICULTURAL BUILDINGS LARGER THAN 2.500 SQUARE FEET WITHIN 825 FART OF THE CENTER OF THE WELL PAD.

#### REPRODUCTION NOTE

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## GADD WELL PAD & WATER CONTAINMENT PAD SITE DESIGN & CONSTRUCTION PLAN. **EROSION & SEDIMENT CONTROL PLANS**

GREEN DISTRICT, WETZEL COUNTY, WEST VIRGINIA LOWER FISHING CREEK & UPPER FISHING CREEK WATERSHED

USGS 7.5 PORTERS FALLS & PINE GROVE QUAD MAP



WEST VIRGINIA COUNTY MAP

- PROPOSED SITE

(NOT TO SCALE)



DESIGN CERTIFICATION:
THE PRABBICS. CONSTRUCTION NOTES, AND RESPERENCE
DIAGRAMS ATTACHED HERETO HAVE BEEN PREPARED IN
ACCORDANCE WITH THE WEST VIRGINAL CODE OF STATE
RULES. DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE
OF 10th AND GAS CHS 155-9.

MISS Utility of West Virginia 1-800-245-4848 West Virginia State Law (Section XIV: Chapter 24-C) Requires that you call two business days before you dig in the state of West Virginia IT'S THE LAW!!

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GADD LIMITS OF DISTURBANCE AR!	EA (AC)
Total Site	
Access Road "A" (1,275")	5.46
Co. Rt. 46 Bump Out	0.78
Well Pad	16,79
Excess/Topsoil Material Stockpiles	10.30
Total Affected Area	33,33
Total Wooded Acres Disturbed	26.11
Impacts to Co. Rt. 46 R/W	
Access Road "A" (4")	0.04
Co. Rt. 46 Bump Out	0.06
Total Affected Area	0.10
Total Wooded Acres Disturbed	0.00
Impacts to Kenneth Eric Butter & Kenneth E.	Butler TM 16-23
Access Road "A"	0.60
Co. Rt. 45 Bump Out	0.72
Well Pad	3.32
Excess/Topsoil Material Stockpries	3,27
Total Affected Area	7,91
Total Wooded Acres Dishrbed	5.63
impacts to William L. & Delores J. Gadd	TM 16-30
Access Road "A" (683")	3,23
Well Pad	1.28
Total Affected Area	4.51
Total Wooded Acres Dishabed	3.99
Impacts to William L. & Delores J. Gadd	TM 16-31
Access Road "A" (588')	1.59
Well Pad	0.50
Excess/Topsoil Material Stockpiles	0,16
Total Affected Area	2.25
Total Wooded Acres Disturbed	1.71
Impacts to William L. & Dalores J. Gadd	TM 16-22
Well Pad	11.69
Excass/Topacil Material Stockpiles	6.87
Total Affected Area	18,56
Total Wooded Acres Disturbed	14.78

Proposed Well Name	NAD 27	NAD 63	Zone 17	NAD 83 Lat & Long
Matchiess	to assess the	N 394903 17	N-4377838.92	LAT 39-32-59 8972
Unit 1H	E toksoné 40	£ 1014474 03	€ 521002.44	LONG-10-45-10-0035
Matchines	N 384660.10	N 364004-02	N 4377830.50	LAT 35-32-59-9158
Unit 2H	E 1646925.28	E 1014464.82	E 621005-43	LONG -80-45-19 8581
Charlotte	N 354970 55	N 384906 00	N 4377840.09	LAT 39-32-59 9344
Unitable	£ 1045935 12	E 1014494.67	E 524006 42	LONG 40-45-19,7327
Charlotta	N 354872 59	N DOMESTIC ACT	N 4377880 63	LAT 29-32-59 9530
Unit 251	£ 1645044 97	E 1814504 52	£ 521011 41	LONG-40-45-19 MIZTS
flusch	N 384874 34	6) 38494II 15	N.43/1841.25	EAT 39-32-50 9716
Ont 1H	E 1945954 R2	E 1814514.39	E 621014.41	LONG -80-45-19 4819
Busch	N 384879 08	fs 284911.69	N 4377841 83	LAT 39-32-59-9902
Unit 2H	£ 1048504.60	E 1814524.21	E 521017.40	LONG-80-45-18.3985
Peoler	N 394877.82	0 384913.64	N 4377842.41	LAT 20-23-00,000s
Unit 1H	E 1645974.51	E 1014534 08	E 521000 36	1.0903-96-45-19.2311
Pealer	N 364879 57	N 384015.38	N 4377842.00	LAT 29-33-00 0274
Unit 251	E 1645984 36	E 1814643 90	E 521023.38	LONG-80-45-19 1057
Poster	H 364681.31	N 384617.12	14.4377843.57	LAT 39-33-00 0467
Unit 3H	€ 1645994.20	E (014353.70	E fi21029 T7	LONG-80-45-18-9803
Blake	N 264653.05	N 384916.87	N 4317844.1E	LAT 39-35-00,0546
Unit 114	£ 1545004.05	E 1814563 60	E 521029 30	LONG-10-45-16 (650
Keystone West	N 384894 (0)	N 284920.61	N-4377844.74	LAT 39-33-00 0832
Unit 1H	€ 1648013 90	€ 1014573.44	E 521012.35	LONG 40-45-18 7296
Blake	N 394595.34	N 384022 3E	N-4377946.32	LAT 39-33-00 1018
Unit 2H	€ 10400Z3 74	E 1014561.29	E 521030 38	LDWG-80-85-18 ISAZ
Keystone West	N 354685 29	N SMILE TO	N 4377945 93	LAT 39-33-00 1204
Unit 2H	£ 1546033 50	E 1814503.14	E 521038 TO	LONG-16-15-1784
Blake	N 384690 03	N 384925.85	N 4077846.48	LAT 29-33-02 1390
Unit 3H	E 1045043.44	E 1814602 96	E 50:1041 30	LONG -80-45-18-3634
Keystone	N 354691.77	N 384927 58	N 4077847 DB	LAT 39-33-00 1975
Unit 3H	E 1646083.27	E 1614812.82	E 521043.21	LONG-80-45-18-2262
Well Pad Elevation	1.722.0			

GA	DO EPHEN	ERAL STREAM	MPACT (LINEAR)	EET	
	Porma	nent Impacts	Temp, Impacts	Temp. Disturb.	-
Stream and Impact Cause		Inlets/Outlets Structures (LF)	Controls (LF)	Distance to L.O.D. (LF)	(LF)
S9 (Well Pad)	94	0	62	19	156
S10 (Well Pad)	0	0	24	9	24
S17 (Well Pad)	20	0	28	9	48

S ENGINEERING

/2017 REVISED WE	WELL CONFIGURA WELL CONFIGURA
S/2017 REVISED WE	NFIGURA
S/2016 REVISED PRI	M. S. PER
S. Procedi.	Tan atoms a decinent
A COM REVISED FE	PER WYDEP COMMENTS



PAD CONTAINMENT GADD COVER PAD



DATE: 12/06/2017 SCALE AS SHOWN SHEET 1 OF 35

