

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 10, 2024 WELL WORK PERMIT Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION 1615 WYNKOOP STREET

DENVER, CO 80202

Re:

Permit approval for Rabin Unit 1H

47-017-06983-00-00

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.

Operator's Well Number: Rabin Unit 1H

Farm Name: Shawn A Glaspell

U.S. WELL NUMBER: 47-017-06983-00-00

Horizontal 6A New Drill

Date Issued: 6/10/2024

API Number:	
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PERMIT CONDITIONS

4701706983

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. <u>Failure to adhere to the specified permit conditions may result in enforcement action.</u>

CONDITIONS

- 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. 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. Also, 24 hours prior to the initiation of the completion process the operator shall notify the Chief or his designee.
- 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.
- 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.



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 dcp.wv.gov

ORDER ISSUED UNDER WEST VIRGINIA CODE, CHAPTER 22, ARTICLE 6A

TO: Antero Resources Corporation

1615 Wynkoop Street Denver, CO 80202 DATE: February 22, 2023 ORDER NO.: 2023-W-3

INTRODUCTION

This Order (hereinafter "Order") is issued by the Office of Oil and Gas (hereinafter "OOG"), by and through its Chief, pursuant to the authority of W. Va. Code §§ 22-1-1, 22-6-1 and 22-6A-1 et seq. to Antero Resources Corporation (hereinafter "Antero" or "Operator"), collectively the "Parties."

FINDINGS OF THE CHIEF

In support of this Order, the Chief hereby finds the following:

- 1. OOG, an office within the West Virginia Department of Environmental Protection, is the agency with the duty and authority to execute and enforce W. Va. Code §22-6-1 and §22-6A-1 et seq., and the rules and regulations promulgated thereunder.
- 2. Antero is a "person" as defined by W. Va. Code §22-6-1(n), with a corporate address as 1615 Wynkoop Street, Denver, CO 80202.
- 3. On January 10, 2023, Antero submitted a well work permit application identified as API# 47-017-06951. The well is located on the Crimson Pad in the McClellan District of Doddridge County, West Virginia.
- 4. On February 14, 2023, Antero requested a waiver for Wetland 10 as outlined in Attachment 1, from well location restriction requirements in W. Va. Code §22-6A-12(b) for the well work permit application identified as API# 47-017-06951.

CONCLUSIONS OF LAW

- 1. West Virginia Code §22-1-6(d) requires, in part, that "in addition to other powers, duties and responsibilities granted and assigned to the secretary by this chapter, the secretary is authorized and empowered to...(3) Enter private lands to make surveys and inspections for environmental protection purposes; to investigate for violations of statutes or rules which the Office of Oil and Gas is charged with enforcing; to serve and execute warrants and processes; to make arrests; issue orders, which for the purposes of this chapter include consent agreements; and to otherwise enforce the statutes or rules which the Office of Oil and Gas is charged with enforcing."
- 2. West Virginia Code §22-6A-2(a)(6) requires, in part, that "Concomitant with the broad powers to condition the issuance of well work permits, the secretary should also have broad authority to waive certain minimum requirements of this article when, in his or her discretion, such waiver is appropriate: *Provided*, That the secretary shall submit a written report of the number of waivers granted to the Legislature commencing January 1, 2013, and each year thereafter."
- 3. West Virginia Code §22-6A-12(b) requires, in part, that "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 Office of Oil and Gas 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 Office of Oil and Gas 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."

ORDER

West Virginia Code §22-6A-12(b) requires, in part, that "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. The Office of Oil and Gas grants the request for a waiver for Wetland 10 from well location restriction requirements in W. Va. Code §22-6A-12(b) for the well work permit application identified as API# 47-017-06951. The Office of Oil and Gas hereby **ORDERS** that Antero shall meet the following site construction and operational requirements for the Crimson Well Pad:

- a. A berm shall be constructed around the perimeter of the pad to contain any potential spills and storm water runoff. Berm is to be at least twenty-four inches (24") in height;
- b. Erosion control blankets shall be installed on all slopes and down gradient locations of the pad as erosion and sediment controlling BMPs;
- c. Wetland 10 shall be protected by the pad perimeter berm, three rows of straw wattles, and two rows of forty-two inch (42") SMART Fence. This along with temporary and permanent vegetative cover will prevent sediment from reaching the wetlands
- d. Disturbed areas not used for operations shall be seeded and mulched per the seeding tables in the WVDEP-OOG Erosion and Sediment Control Manual;
- e. Drill cuttings and associated drilling mud shall be disposed of in a permitted landfill;
- f. Waste generated by the flowback treatment systems shall be sent to offsite disposal at a permitted landfill;
- g. Weekly site inspections shall be conducted to monitor and maintain the integrity of the BMP storm water controls:
- h. Weekly storm water and spill prevention inspections shall be conducted focusing on storm water and spill prevention BMPs and maintenance of these BMPs;
- i. Inspections of the storm water and spill prevention measures shall be conducted after any major storm event defined as a half inch (½") rain within any twenty-four (24) hour period;
- j. Pad inspections shall be conducted no less than once a week to identify and mitigate potential deficiencies;
- k. All records from inspections shall be maintained on site for the life of the project and be available upon request.

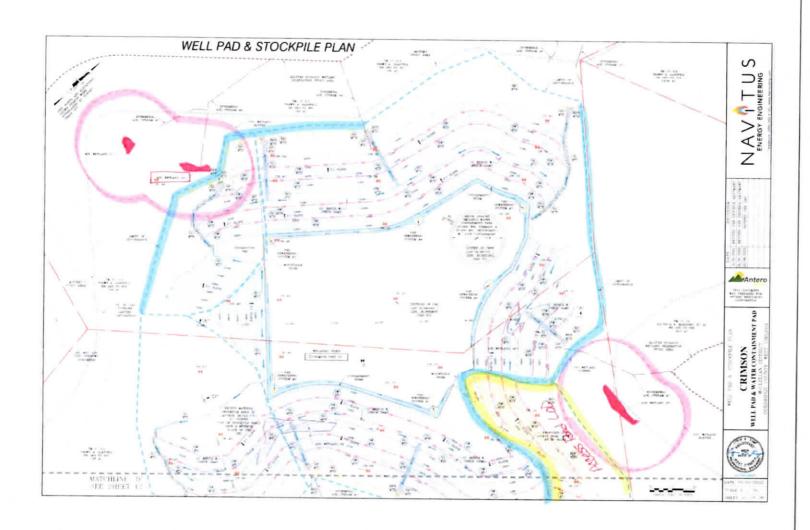
Thus ORDERED, the 22nd day of February 2023.

IN THE NAME OF THE STATE OF WEST VIRGINIA:

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

By

JAMES A. MARTIN, CHIEF



API NO. 47-017
OPERATOR WELL NO. Rabin Unit 1H
Well Pad Name: Crimson Pad

4701706983

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

1) Well Operator	r: Antero l	Resources	Corporat	494507062	017-Doddrid	McLellan	Center Point 7.5'
				Operator ID	County	District	Quadrangle
2) Operator's W	ell Number:	Rabin Un	it 1H	Well Pad	Name: Crims	on Pad	 -
3) Farm Name/S	urface Own	er: Shawn	A. Glaspe	ell Public Road	d Access: Rigg	ins Run	
4) Elevation, cur	rent ground	l: <u>1249'</u>	Ele	evation, proposed p	oost-constructio	on: 1222'	
, , ,	(4) 040	X	_ Oil	Unde	rground Storag	е	
	Other _	<u> </u>					
1	(b)If Gas	Shallow	X	Deep			
6) Existing Pad:	Ves or No	Horizontal Yes	<u>X</u>				
7) Proposed Tar	get Formatio	on(s), Depth		pated Thickness ar ss- 55 feet, Associa	-	, ,	
8) Proposed Total	al Vertical I		00' TVD				
9) Formation at '			Marcellus				
10) Proposed To	tal Measure	d Depth:	7700' MD			RECEI	VED Gas
11) Proposed Ho	orizontal Leg	g Length:	0,			Office of Or	
12) Approximate	e Fresh Wat	er Strata De	epths:	303', 953'			5 2024
13) Method to D	etermine Fr	esh Water I	Depths: 4	7-017-00483		W Det	_{Dartment} of ontal Protection
14) Approximate		_	i			Environme	tino.
15) Approximate	e Coal Seam	Depths: N	lone Ident	ified			
16) Approximate	e Depth to P	ossible Voi	d (coal min	ne, karst, other): 1	lone Anticipat	ed	
17) Does Propos directly overlyin				Yes	No	<u>x</u>	
(a) If Yes, prov	vide Mine In	ıfo: Name	::				
		Depth	ı:				
		Seam	:				
		Owne	er:				

API NO. 47-017 -

OPERATOR WELL NO. Rabin Unit 1H

Well Pad Name: Crimson Pad

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18)

CASING AND TUBING PROGRAM

ТҮРЕ	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	20"	New	H-40	94#	100	100	CTS, 89 Cu. Ft.
Fresh Water	13-3/8"	New	J-55	54.5#	1003	1003	CTS, 1045 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	2500	2500	CTS, 1018 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	23#	7700	7700	1013 Cu. Ft
Tubing	2-3/8"	New	N-80	4.7#			
Liners							

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	20"	24"	0.438"	1530	50	Class A/L	~1.18
Fresh Water	13-3/8"	17-1/2"	0.38"	2730	1000	Class A/L	~1.18
Coal	9-5/8"	12-1/4"	0.352"	3520	1500	Class A/L	~1.18
Intermediate							
Production	5-1/2"	8-3/4" & 8-1/2"	0.415"	12,630	2500	Lead-H/POZ & Tail - H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11,200			
Liners							

PACKERS

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Kind:	N/A		MAY 2 2	2024
Sizes:	N/A		iv\ Берагіті Environmental P	
Depths Set:	N/A	·		

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OS 05-/16/2024

WW-6B	
(10/14)	

API NO. 47- 017 OPERATOR WELL NO. Babin Unit 1H

Well Pad Name: Crimson Pad

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

Drill, perforate, fracture a new vertical shallow well and complete Marcellus Shale.

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

Antero plans to pump Slickwater into the Marcellus Shale formation in order to ready the well for production. The fluid will be comprised of approximately 99 percent water and sand, with less than 1 percent special-purpose additives as shown in the attached "List of Anticipated Additives Used for Fracturing or Stimulating Well."

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

- 21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 36.89 acres
- 22) Area to be disturbed for well pad only, less access road (acres): 14.46 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.

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

Conductor: no additives, Class A/L cement.

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

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

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

MAY 2 2 2024

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

25) Proposed borehole conditioning procedures:

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

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

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

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

*Note: Attach additional sheets as needed.

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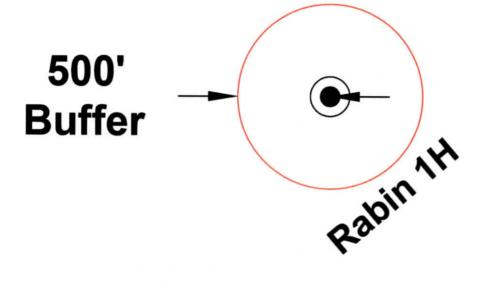
Z 05/16/2024

4701706983

- LEGEND
- Proposed gas well
- Existing Well, as noted
- Digitized Well, as noted

GRID NORTH

The orientation of this survey is Grid North, and its coordinate base is the West Virginia Coordinate System of 1927, North Zone



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MAY 08 2024

WV Department of Environmental Protection

Bridgeport Office 172 Thompson Drive Phone: (304) 848-5035 Bridgeport, WV 26330 Fax: (304) 848-5037 PARTY CHIEF: C. Lynch DRAWN BY J. McNemar RESEARCH: PREPARED: May 6, 2024 SURVEYED: Dec. 2016 PROJECT NO: 268-30-M-22

Sheet 1 of 1

DRAWING NO: Rabin 1H Vertical AOR

FIELD CREW:

C.L., K.M.

0' 500' 1000' Scale: 1 inch = 500 fee 06/14/2024



Antero Resources

1615 Wynkoop Street Denver, CO 80202 Office 303.357.7310 Fax 303.357.7315

May 7th, 2024

West Virginia Office of Oil and Gas Attn: Taylor Brewer 601 57th St SE Charleston, WV 25304

RE: Request for Variance – Class L Cement Rabin Unit 1H Doddridge County, WV

Mr. Brewer:

Pursuant to 35CSR8 Section 9.2.h.8, Antero Resources Corporation ("Antero") would like to implement the variance to allow Class L Cement in place of Class A cement relating to the construction of the following horizontal well (Rabin Unit 1H) on the Crimson pad.

Antero only plans to use this method if Class A cement is not available to be use due to supply issues. Please see Order No 2022-14 attached.

If you have any questions or need further information, please feel free to contact Mallory Turco, Permitting Manager, at (303) 357-7182 or email at mturco@anteroresources.com.

Sincerely,

Carly Marvel Permitting Agent

Antero Resources Corporation

Office of Oil and Gas

WV Department of Environmental Protection



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Office of Oil and Gas 601 57th Street, SE Charleston, WV 25304 Phone (304) 926-0450 Harold D. Ward, Cabinet Secretary dep.wv.gov

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

IN THE MATTER OF A VARIANCE FROM)	
LEGISLATIVE RULE 35CSR4)	ORDER NO. 2022-14
SECTION 11.5 AND LEGISLATIVE RULE)	
35CSR8 SECTION 9.2.h.8.,	Ó	
RELATING TO THE CEMENTING)	
OF OIL AND GAS WELLS	Ú	

REPORT OF THE OFFICE

In response to industry requests, the West Virginia Department of Environmental

Protection, Office of Oil and Gas has reviewed the proposed use of American Petroleum Institute

(API) Class L cement to be used in place of API Class A cement for well construction.

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MAY 08 2024

FINDINGS OF FACT

WV Department of Environmental Protection

- 1. On July 14, 2022, Northeast Natural Energy (NNE) submitted a variance request from Legislative Rule 35CSR8 Section 9.2.h.8., for the use of API Class L cement in place of API Class A cement, relating to the construction of horizontal wells.
- Laboratory analysis submitted by NNE on July 14, 2022, indicates API Class L cement is comparable to API Class A cement and thereby satisfies the requirements of the West Virginia Code.
- 3. Contemporaneously, the Chief of the Office of Oil and Gas also chose to consider a variance to Legislative Rule 35CSR4 Section 11.5., for the use of API Class L cement in place of API Class A cement, relating to the construction of vertical wells.

Promoting a healthy environment

On August 18, 2022, the Office of Oil and Gas provided public notice of acceptance of
public comments on the variance consideration. During the 20-day public comment
period, no comments were received.

CONCLUSIONS OF LAW

Pursuant to Article 6 and Article 6A, Chapter 22 of the Code of West Virginia, the Office of Oil and Gas has jurisdiction over the subject matter, and the persons interested therein, and jurisdiction to promulgate the hereinafter prescribed Order.

Pursuant to Legislative Rule 35CSR4, Section 18 and Legislative Rule 35CSR8, Section 14, the Chief of the Office of Oil and Gas may grant a variance from any requirement of these rules.

ORDER

It is ordered that the Class L cement product approved and monogramed by API is approved for use in place of API Class A cement for well construction subject to the provisions of Legislative Rule 35CSR4 and Legislative Rule 35CSR8.

Dated this, the 13th day of September, 2022.

IN THE NAME OF THE STATE OF WEST VIRGINIA

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

James Martin, Chief Office of Oil and Gas

Office of Oil and Gas

MAY 08 2024

WV Department of Environmental Protection

WW-9 (4/16)

API Number	47 -	017	-	

Operator's Well No. Rabin Unit 1H

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN
Operator Name Antero Resources Corporation OP Code 494507062
Watershed (HUC 10) McElroy Creek Quadrangle Center Point 7.5'
Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes No
Will a pit be used? Yes No V
If so, please describe anticipated pit waste: No pit will be used at this site (Orifling 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. AP# will be provided on Form WR-34 Off Site Disposal (Supply form WW-9 for disposal location(Meadowfill Landfill Permit #SWF-1032-98) Other (Explain **Northwestern Landfill Permit #SWF-1025/* WV0109410 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 - Alt/Freshwater, intermediate - Dust/Stiff Fearm, Production - Water Based Mod
-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. RECEIVED Office of Office of
Company Official (Typed Name) Gretchen Kohler MAY 0 8 7074
Company Official Title Director of Environmental & Regulatory Compliance
wv Department
Environmental Protection
Subscribed and sworn before me this day of January, 20 24
CARM RAYNE MARVEL Notary Public
My commission expires

Form WW-9 Operator's Well No. Rabin Unit 1H **Antero Resources Corporation** Proposed Revegetation Treatment: Acres Disturbed 36.89 acres Prevenetation pH _____ 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 "A" (13.24 scres) + Staging Area (1.53 acros) + Well Ped (14.46 acros) + Production
Massirel Stockpiles (6.02 acros) - 26.89 Acros m Ferriment Ped (1.62 acres) + Excess/Torsesi Temporary Seed Type lbs/acre Seed Type lbe/acre **Annual Ryegrass** 40 Crownvetch 10-15 Field Bromegrass 40 Tall Fescue 30 See attached Table IV-3 for additional seed type (Crimeon Ped Dealon) See attached Table IV-4A for additional need type (Crimeon Pad Deelon) *or type of grass seed requested by surface owner or type of grass seed requested by surface owner 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: Comments: RECEIVED Office of Oil and Gas - WV Department of Environmental Protection

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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WV Department of Environmental Protection 13. Escaid 110

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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vv. Jeparnieni of Environmental Protection



911 Address 4439 Riggins Run West Union, WV 26426

Well Site Safety Plan Antero Resources

Well Name: CRIMSON UNIT 5V, DODRILL UNIT 1H, FRIPP UNIT 1H, GLASPELL UNIT 1H, PERNA UNIT 1H, RABIN UNIT 1H, RALPH UNIT 1H, RAMZA UNIT 1H

Pad Location: CRIMSON PAD

Doddridge County/McLellan District

GPS Coordinates:

Entrance - Lat 39. 386878 / Long -80.676999 (Nad83)
Pad Center - Lat 39.385093 /Long -80.685409 (Nad83)

Driving Directions:

- 1. From WV 18, turn southeast onto WV 23 and travel for 11.6 miles.
- 2. Turn right onto CO. 5 (Riggins Run Rd) and travel for 1.3 mile.

3. The Crimson Lease Road will be on the right.

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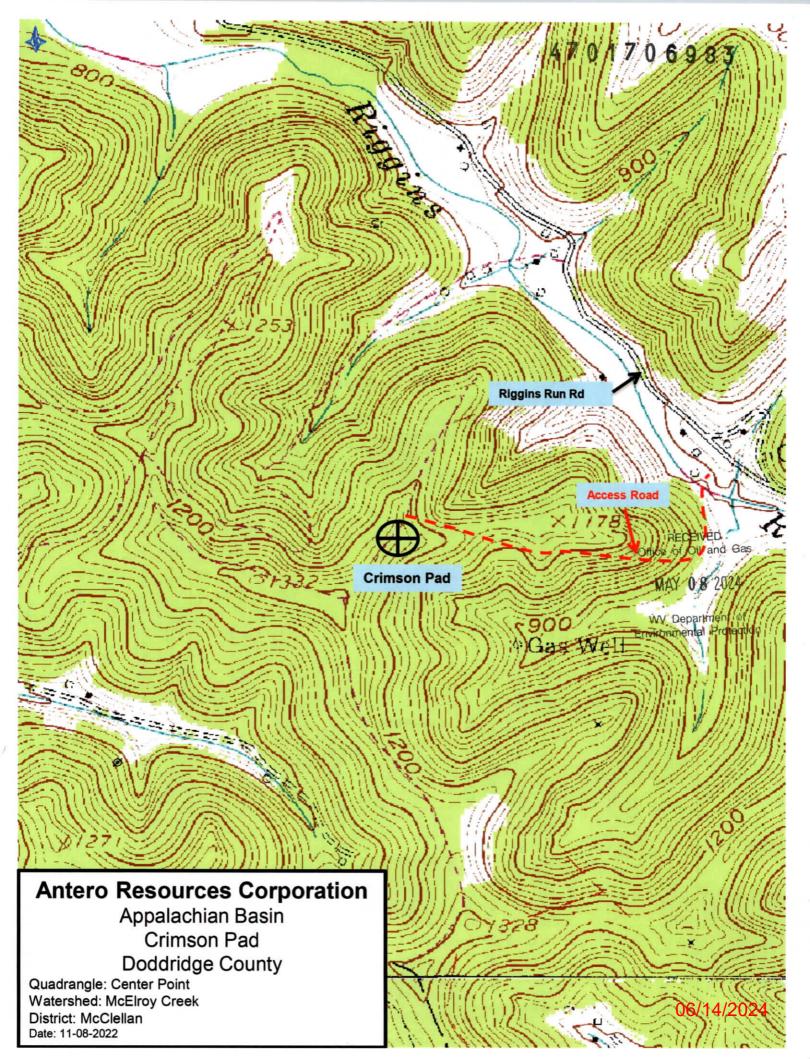
WV Departmer of Environmental Protection

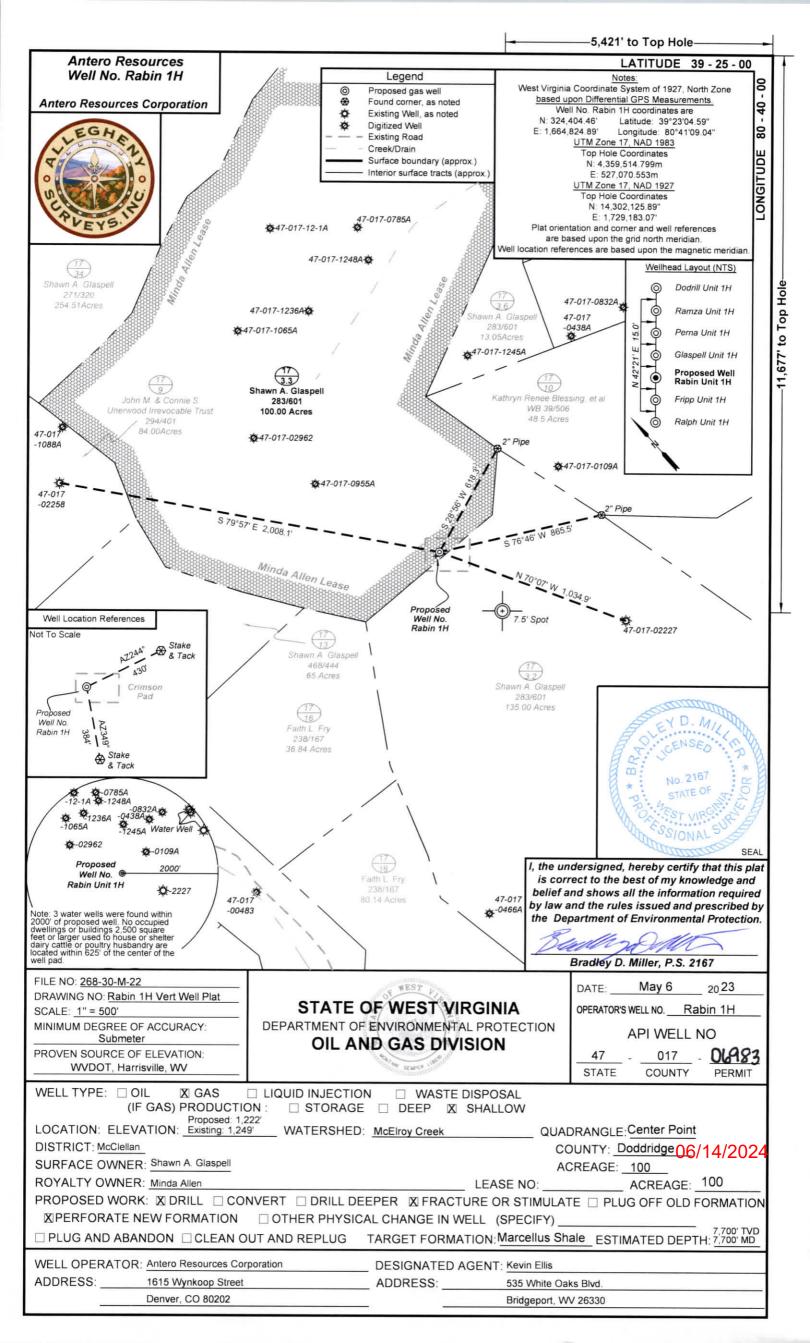
EMERGENCY (24 HOUR) CONTACT 1-800-878-1373

09/9/2022

Page 1

05/16/2024





Name Change

Assignment

Merger

WW-6A1
(5/13)

Operator's	Well No.	Rabin Unit 1H	
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INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE Chapter 22, Article 6A, Section 5(a)(5) IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)

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

- (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:

Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
A: Minda Alien Lease	Minda Allen	W.B. Allen	1/0	200
	W.B. Allen		1/8	7/357
		South Penn Oil Company	Assignment	7/359
	South Penn Oil Company	Pennzoil Company	Name Change	WVSOS
	Pennzoil Company	Pennzoil Products Company	Deed	203/621
	Pennzoil Products Company	Pennzoil Exploration and Production Company	Deed	239/355
	Pennzoil Exploration and Productioin Company	Pennz Energy Exploration and Production LLC	Deed	240/702
	Pennz Energy Exploration and Production LLC	Devon Energy Production Company L.P	Merger	244/399
	Devon Energy Production Company L.P	East Resources Inc	Assignment	247/337
	East Resources Inc	East Resources Inc and HG Energy LLC	Assignment	253/31
	East Resources Inc and HG Energy LLC	American Energy Marcellus LLC	Assignment	361/1
	American Energy Marcellus LLC	Ascent Resources Marcellus LLC	Name Change	36/455

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

Antero Resources Corporation

Tribune Resources, LLC

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

Ascent Resources -- Marcellus LLC

Tribune Resources, LLC

- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

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431/260

530/325

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W/ Department of Environmental Protection

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

Well Operator:	Antero Resources Corporation		
By:	Tim Rady		
Its:	Senior Vice President of Land		

4701706983



May 6, 2024

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:

Rabin Unit 1H

Quadrangle: Center Point 7.5'

I tonia Buf

Doddridge County/McLellan District, West Virginia

Mr. Martin:

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

Sincerely,

Antonia Booth Landman Associate RECEIVED
Office of Oil and Gas

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WV Department of Environmental Protection Date of Notice Certification: 05/06/2024

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

	ce Certification: 05/06/2024		API No. 47			
			-	Well No. Rabi		
Nation has	haan alau.		Well Pad N	Name: Crimson	n Pad	
Notice has l	occu given:	800 (4.4.6)				
ruisuani io u helow for the	ne provisions in West Virginia Code tract of land as follows:	§ 22-6A, the Operator has pro-	vided the req	luired parties v	with the Notice Forms liste	:d
State:	West Virginia		Pastina.	502070 55		
County:	Doddridge	UTM NAD 83	Easting: Northing:	527070.55m		
District:	McLeffan	Public Road Acc	_	4359514.80m		
Quadrangle:	Center Point 7.5'	Generally used fa		Riggins Run Shawn A. Glaspe		
Watershed:	McElroy Creek	Generally used to	min name.	SHAWIT A. GIASPE	и	
of giving the equirements Virginia Code	ed the owners of the surface descri- equired by subsections (b) and (c), s surface owner notice of entry to so of subsection (b), section sixteen of e § 22-6A-11(b), the applicant shall have been completed by the applicant	ection sixteen of this article; (in urvey pursuant to subsection (of this article were waived in tender proof of and certify to the	i) that the red (a), section to writing by t	quirement was en of this arti the surface ov	deemed satisfied as a resu cle six-a; or (iii) the notic where and Pursuant to We	ılt ce
that the Ope	West Virginia Code § 22-6A, the Or rator has properly served the require ECK ALL THAT APPLY	perator has attached proof to the departies with the following:	his Notice Co	ertification	OOG OFFICE USE	
					ONLY	1
	TICE OF SEISMIC ACTIVITY or	■ NOTICE NOT REQUIR SEISMIC ACTIVITY WAS			ONLY RECEIVED/ NOT REQUIRED	
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1. NOT 2. NOT 3. NOT	TICE OF SEISMIC ACTIVITY or	SEISMIC ACTIVITY WAS VEY or NO PLAT SURVE NOTICE NOT REQUIR NOTICE OF ENTRY FOR H WAS CONDUCTED or WRITTEN WAIVER H	CONDUCTEY WAS CORED BECAUPLAT SURV	TED ONDUCTED USE VEY	RECEIVED/ NOT REQUIRED RECEIVED/ NOT REGEORNSD Office of Oil and	24

Required Attachments:

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

Certification of Notice is hereby given:

4701706983

THEREFORE, I Jon McEvers 6A. I certify that as required unde above, to the required parties that	, have read and understand the notice requirements within West Virginia Code § 22- er West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified ough personal service, by registered mail or by any method of delivery that requires a receipt or
in this Notice Certification and obtaining the information, I believe	all attachments, and that based on my inquiry of those individuals immediately responsible for that the information is true, accurate and complete. I am aware that there are significant penalties cluding the possibility of fine and imprisonment.

Well Operator: Antero Resources Corporation

By: Jon McEvers

Senior VP of Operations

Telephone: 303-357-8799

Address: 1615 Wynkoop Street

Denver, CO 80202

Facsimile: 303-357-7373

Email: cmarvel@anteroresources.com

NOTARY SEAL

CARLY RAYNE MARVEL

Notary Public

State of Colorado

Notary ID # 20224038743

My Commission Expires 10-05-2026

Subscribed and sworn before me this 3 day of MAY 2024.

COPY RAYNE WARPEL Notary Public

My Commission Expires 10-5-710

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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MAY 08 2024

WV Department on Environmental Protection

API NO. 47-017 -	
OPERATOR WELL NO. Rabin Unit 1H	
Well Pad Name: Crimson Pad	

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

Noti	ice Time Requirem	ent: notice shall be provide	ed no later than the filing date of permit application.	
	e of Notice: 5/7/2024 ice of:	Date Permit Applicati	on Filed: <u>577/2</u> 024	
7	PERMIT FOR AN WELL WORK		TATE OF APPROVAL FOR THE UCTION OF AN IMPOUNDMENT OR PIT	
Deli	very method pursu	ant to West Virginia Cod	le § 22-6A-10(b)	
	PERSONAL SERVICE	REGISTERED MAIL	METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION	
the soil ardescriptor well important properties of the soil ardescriptor well are soil are so	urface of the tract on and gas leasehold being ribed in the erosion at ator or lessee, in the extension at ator or lessee, in the extension at ator or lessee, in the extension at a tor or lessee, in the extension at a surface to bundment or pit as desired a water well, spring of the water for consumposed well work activities of the sheriff requision of this article to the R. § 35-8-5.7.a requirement of the section of the section to the section of this article to the section of the section of this article to the section of this article to the section of the sec	which the well is or is proper general developed by the proposer of sediment control plan subsection the tract of land on whowever the tract of land on whowners of record of the surfact is to be used for the placerised in section nine of the proper water supply source located the placerise of t	sires a receipt or signature confirmation, copies of the application, the is article, and the well plat to each of the following persons: (1) The cosed to be located; (2) The owners of record of the surface tract or trid well work, if the surface tract is to be used for roads or other land obmitted pursuant to subsection (c), section seven of this article; (3) Thick the well proposed to be drilled is located [sic] is known to be unsace tract or tracts overlying the oil and gas leasehold being developed cement, construction, enlargement, alteration, repair, removal or abasis article; (5) Any surface owner or water purveyor who is known to be deviluin one thousand five hundred feet of the center of the well pact animals; and (6) The operator of any natural gas storage field within more than three tenants in common or other co-owners of interests deant to section eight, article one, chapter eleven-a of this code. (2) Not holder is not notice to a landowner, unless the lien holder is the land or shall also provide the Well Site Safety Plan ("WSSP") to the surface water testing as provided in section 15 of this rule.	owners of record of acts overlying the disturbance as the coal owner, derlain by one or d by the proposed andonment of any the applicant to d which is used to an which the escribed in the twithstanding any downer W. Va
	pplication Notice TRFACE OWNER(s		Plan Notice	
	e: Shawn A. Glaspell	,	Name: NO DECLARATIONS ON RECORD WITH COUNTY	
	ress: 5512 Riggins Run		Address:	RECEIVED
	Jnion, WV 26456		11444633.	Office of Oil and Gas
Nam	e:		COAL OPERATOR	
Addı	ess:		Name: NO DECLARATIONS ON RECORD WITH COUNTY	MAY 08 2024
				WAL GO
□SU	RFACE OWNER(s	(Road and/or Other Distu	Address:	٥
			WATER PURVEYOR(s)/OWNER(s) OF WATER WELL,	Hellia Huechen
Addr	ess:		SPRING OR OTHER WATER SUPPLY SOURCE	Highlan 1 1000
			Name: NONE WITHIN 1500	
Name	e:		Address:	
Addr	ess:			
			OPERATOR OF ANY NATURAL GAS STOR	AGE FIELD
□SŪ	RFACE OWNER(s)	(Impoundments or Pits)	Name:	
Nam	e:		Address:	
Addr	ess:			
			*Please attach additional forms if necessary	

API NO. 47-017 OPERATOR WELL NO. Rabin Unit 1H
Well Pad Name: Crimson 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 Departmental Department of Environmental Department of Environmental D

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

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API NO. 47-017

OPERATOR WELL NO. Rabin Unit 1H

Well Pad Name: Crimson 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: RECEIVED

Office of Oil and Gas

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

MAY 08 2024

WV Department of

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.

47017-06983 API NO. 47-017-06983 OPERATOR WELL NO. Rabin Unit 1H

Well Pad Name: Crimson 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 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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Office of Oil and Gas

MAY 08 2024

E. w. Inmental Protection

4701706983

API NO. 47- 017

OPERATOR WELL NO. Rabin Unit 1H

Well Pad Name: Crimson Pad

Notice is hereby given by:

Well Operator: Antero Resources Corporation

Telephone: (303) 357-7373

Email: cmarvel@anteroresources.com

Author 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.

CARLY RAYNE MARVEL
Notary Public
State of Colorado
Notary ID # 20224038743
My Commission Expires 10-05-2026

Subscribed and sworn before me this 3 day of MAY 2024

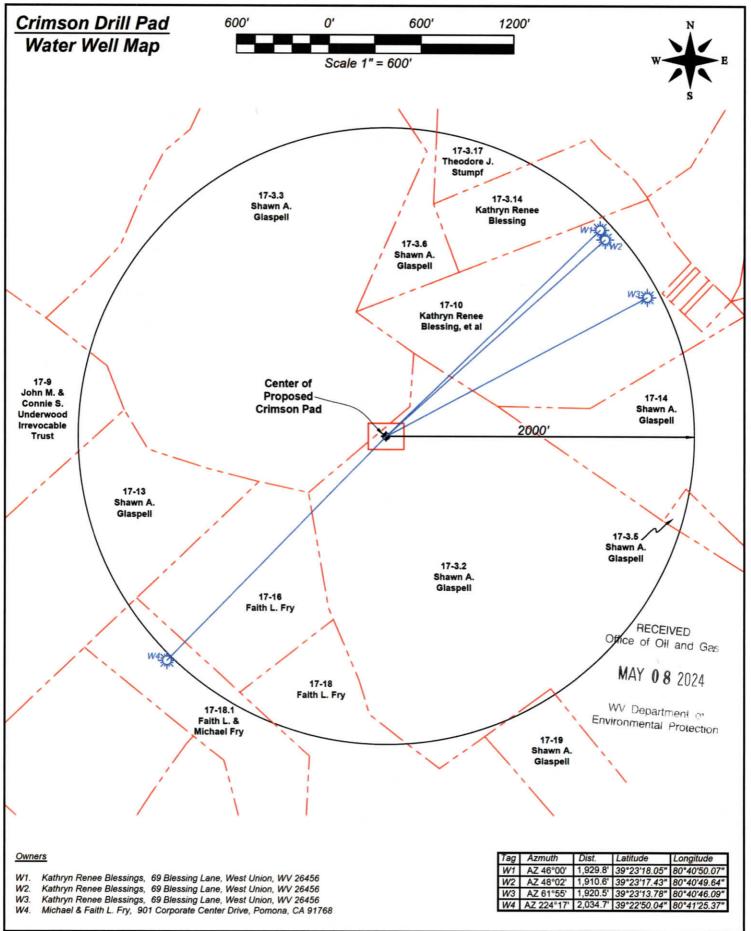
My Commission Expires

10-5-210

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WV Department in Environmental Protection



STATE OF WEST VIRGINIA 4701706983 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 R Date of Notice		at least TEN (10) days prior to filing a ermit Application Filed: 05/07/2024	permit application.	
Delivery meth	od pursuant to West Virginia Code §	§ 22-6A-16(b)		
☐ HAND	■ CERTIFIED MAIL			
DELIVER		FOLIESTED		
receipt requeste drilling a horiz of this subsecti subsection may	ed or hand delivery, give the surface of contal well: <i>Provided</i> , That notice give on as of the date the notice was provide to be waived in writing by the surface of	days prior to filing a permit application, when notice of its intent to enter upon the pursuant to subsection (a), section to ed to the surface owner: <i>Provided, how</i> when the notice, if required, shall included address of the operator and the operator	the surface owner's land en of this article satisfied wever, That the notice roude the name, address,	I for the purpose of es the requirements equirements of this telephone number.
Notice is here	eby provided to the SURFACE O	WNER(s):		
Name: Shawn A.		Name:		
Address: 5512 R	Riggins Run	Address:		
West Union, WV 26	3456			
the surface own State: County: District: Quadrangle:	ner's land for the purpose of drilling a h West Virginia Doddridge McLellan Center Point 7.5' McElroy Creek	e is hereby given that the undersigned norizontal well on the tract of land as for Easting: Output O	bllows: 527070.55m 4359514.80m Riggins Run Shawn A. Glaspell	
This Nation S	Shall Include:			
Pursuant to W facsimile numb	est Virginia Code § 22-6A-16(b), this per and electronic mail address of the contal drilling may be obtained from the	s notice shall include the name, address operator and the operator's authorized the Secretary, at the WV Department of (304-926-0450) or by visiting		

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.

WW-6A5 (1/12)

Operator Well No. Rabin Unit 1H

4701706983

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

Date of Notice	Date Permit Applicati			mppheacton.
Delivery meth	od pursuant to West Virginia Code § 22-6A-1	16(c)		
	ED MAIL N RECEIPT REQUESTED HAND DELL'	O VERY		
return receipt re the planned op required to be p drilling of a ho damages to the	Va. Code § 22-6A-16(c), no later than the da equested or hand delivery, give the surface own peration. The notice required by this subsection provided by subsection (b), section ten of this are prizontal well; and (3) A proposed surface use surface affected by oil and gas operations to the required by this section shall be given to the surface.	ner whose land on shall includ- ticle to a surfa and compensa- e extent the date	will be used for e: (1) A copy of ce owner whose ation agreement mages are comp	the drilling of a horizontal well notice of of this code section; (2) The information a land will be used in conjunction with the containing an offer of compensation for the land under article six-b of this chapter.
	by provided to the SURFACE OWNER(s)	ti-ali		
Name: Shawn A.	listed in the records of the sheriff at the time of			
Address: 5512 R				
West Union, WV 26				
operation on the State: County:	est Virginia Code § 22-6A-16(c), notice is hereb he surface owner's land for the purpose of drillin West Virginia Doddridge McLellan		well on the trac Easting: Northing:	
Quadrangle:	Center Point 7.5'	Generally use	d farm name:	Shawn A. Glaspell
	McElroy Creek			
to be provided horizontal well surface affecte information re	est Virginia Code § 22-6A-16(c), this notice shall by W. Va. Code § 22-6A-10(b) to a surface l; and (3) A proposed surface use and compensad by oil and gas operations to the extent the dilated to horizontal drilling may be obtained frollocated at 601 57 th Street, SE, Charleston,	owner whose ation agreemer amages are co om the Secret	land will be un at containing an ampensable under ary, at the WV	sed in conjunction with the drilling of a offer of compensation for damages to the er article six-b of this chapter. Additional Department of Environmental Protection
Wall Ones to		A ddmoor:		Office of Oil and Gas
Well Operator:		Address:	1615 Wynkoop Stree	
Telephone:	303-357-7373	Faccimile	Denver, CO 80202	MAY 08 2024
Email:	cmarvel@anteroresources.com	Facsimile:	303-357-7310	
Oil and Cas P	rivaev Notice			Av. Sparifieff Of

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.



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

Office of the District Engineer/Manager **District Four**

Post Office Box 4220 · Clarksburg, West Virginia 26302 · (304) 842-1500

Alanna J. Keller, P.E. **Deputy Secretary of Transportation** Deputy Commissioner of Highways

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

January 30, 2024

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 Crimson Well Pad, Doddridge County Rabin Unit 1H Well Site

Dear Mr. Martin,

This well site will be accessed from a DOH permit #04-2022-0309 which has been issued to Antero Resources Corporation for access to the State Road for a well site located off Doddridge County Route 5 SLS MP 10.219.

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 March 6, 2023. This letter is valid for permitting purposes for one year from the date of this letter.

Very Truly Yours,

Stephen G. Johnson, P.E. **Director of Operations**

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Charles and a line Environmental Protection

Cc: Carly Marvel Antero Resources OM, D-4

File

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
	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
	Sillica crystalline quartz Sodium Chloride	7631-86-9
		7647-14-5
	Sodium Hydroxide	1310-73-2
	Sugar	57-50-1
	Surfactant	68439-51-0
	Suspending agent (solid)	14808-60-7
	Tar bases, quinolone derivs, benzyl chloride-quarternized	72480-70-7
	Solvent Naptha, 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
	Hexamythylene Triamine Penta	34690-00-1
	Phosphino Carboxylic acid polymer	71050-62-9
	Hexamethylene diamine penta	23605-74-5
	2-Propenoic acid, polymer with 2 propenamide	9003-06-9
	Hexamethylene diamine penta (methylene phosphonic a	·
	Diethylene Glycol	111-46-6
	Methenamine	100-97-0
	Polyethylene polyamine	68603-67-8
	Coco amine	61791-14-8
45.	2-Propyn-1-olcompound with methyloxirane	38172-91-7

OPERATOR: Antero Resources Corp.	WELL NO: Rabin Unit 1H
PAD NAME: Crimson Pad	
REVIEWED BY: Mallory Turco	SIGNATURE: Man Tu

WELL RESTRICTIONS CHECKLIST

HORIZONTAL 6A WELL

Well	Restri	ctions	
		At Least 100 Feet from Pad and LOD (including any E&S Cont Perennial Stream, Lake, Pond, Reservoir or Wetland; OR	
		DEP Waiver and Permit Conditions	
	✓	At Least 300 Feet from Pad and LOD (including any E&S Control Feature) to any Naturally Producing Trout Stream; OR	
		DEP Waiver and Permit Conditions	
	\checkmark	At Least 1000 Feet from Pad and LOD (including any E&S Control Feature) to an Groundwater Intake or Public Water Supply; OR	у
		DEP Waiver and Permit Conditions	
	✓	At Least 250 Feet from an Existing Water Well or Developed Spring to Well Bein Drilled; OR	g
		Surface Owner Waiver and Recorded with County Clerk, OR	
		DEP Variance and Permit Conditions	RECEIVED
	\checkmark	At Least 625 Feet from an Occupied Dwelling Structure to Center of the Pad; OR	Office of Oil and Gas
		Surface Owner Waiver and Recorded with County Clerk, OR	MAY 08 2024
		DEP Variance and Permit Conditions	WV Department of Environmental Protecti
	\checkmark	At Least 625 Feet from Agricultural Buildings Larger than 2500 Square Feet to the of the Pad; OR	e Center
		Surface Owner Waiver and Recorded with County Clerk, OR	
		DEP Variance and Permit Conditions	