

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

Tuesday, October 4, 2022 PERMIT MODIFICATION APPROVAL Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION 1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit Modification Approval for PETER UNIT 1H

47-017-06933-00-00

Lateral Extension

ANTERO RESOURCES CORPORATION

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

If there are any questions, please feel free to contact me at (304) 926-0450.

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Operator's Well Number: PETER UNIT 1H

Farm Name: PHILLIP N HILL ET AL

U.S. WELL NUMBER: 47-017-06933-00-00

Horizontal 6A New Drill

Date Modification Issued: 10/04/2022

Promoting a healthy environment.

WW-6B (04/15) CK# 4012943

API NO. 47- 017 - 06933

OPERATOR WELL NO. Peter Unit 1H MOD

Well Pad Name: Lemley Pad

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

1) Well Operator: Antero R	Resources Corpora	at 494507062	017-Doddrid	Grant	Smithburg 7.5'
-)		Operator ID	County	District	Quadrangle
2) Operator's Well Number:	Peter Unit 1H MC	DD Well P	ad Name: Lemle	y Pad	
3) Farm Name/Surface Owne	er; Phillip N. Hill, e	et al Public Ro	oad Access: Holle	ow Run R	d
4) Elevation, current ground:	1304' AS BUILT I	Elevation, propose	d post-construction	on:	
5) Well Type (a) Gas X Other	Oil _	Un	derground Storag	e	
4-7	Shallow X Horizontal X	Deep			=0W
6) Existing Pad: Yes or No	Yes				10141
 Proposed Target Formation Marcellus Shale: 7700' TVE 					
8) Proposed Total Vertical D	epth: 7700' TVD				
9) Formation at Total Vertica	4.4	us			
(0) Proposed Total Measured	d Depth: 16400' I	MD			
1) Proposed Horizontal Leg	Length: 7762.5'				
12) Approximate Fresh Wate	er Strata Depths:	291', 345, 366	790'		
13) Method to Determine Fre	esh Water Depths:	47-017-04998, 47-017-0	4719. Depths have bee	n adjusted acc	cording to surface elevation
14) Approximate Saltwater D	Depths: 1460', 167	'3', 1700', 1710'			
15) Approximate Coal Seam	Depths: 980'				
16) Approximate Depth to Po	ossible Void (coal r	mine, karst, other):	None Anticipat	ed	
17) Does Proposed well locat directly overlying or adjacent			No No	X	
(a) If Yes, provide Mine Int	fo: Name:				RECEIVED Office of Oil and Car.
S. C. C. Const. Marrie Str. C.	Depth:				SEP 26 2022
	Seam:			Env	WV Department of
	Owner:				

WW-6B (04/15) API NO. 47- 017 _ 06933

OPERATOR WELL NO. Peter Unit 1H MOD
Well Pad Name: Lemley Pad

18)

CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	20"	New	X60	78.67#	100	100	CTS, 96 Cu. Ft.
Fresh Water	13-3/8"	New	J/K-55	54.5#	840'	840'	CTS, 583 Cu. Ft.
Coal	9-5/8"	New	J/K-55	36#	3200'	3200'	CTS, 1303 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110CY	20#	16400'	16400'	3205 Cu. Ft
Tubing	2-3/8"	New	N-80	4.7#		7100'	
Liners							

SDW 1014 lzonz

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-H/POZ & Tail - H	H/POZ~1.44 & H~1.8
Tubing	2-3/8"	4.778"	0.19"	11,200			
Liners							

PACKERS

Kind:	N/A	Dec.
Sizes:	N/A	Office of Oil and Gas
Depths Set:	N/A	Wy Department or Environmental Protection

API NO. 47- 017 - 06933

OPERATOR WELL NO. Peter Unit 1H MOD
Well Pad Name: Lemley Pad

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

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

*Antero will be air drilling the fresh water string which makes it difficult to determine when 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): 27.26 acres
- 22) Area to be disturbed for well pad only, less access road (acres): 4.31 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:

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

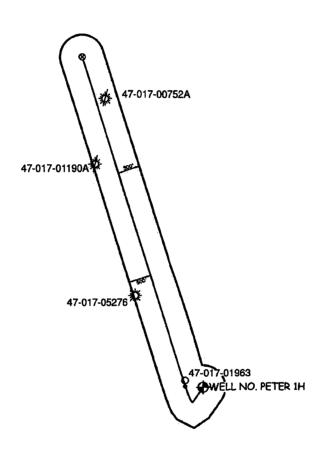
Surface: blowhole clean with air, trip to conductor shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate pipe capacity + 40 bbls fresh water followed by 25 bbls bentonite mud, 10 bbls fresh water spacer.

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.

LEMLEY PAD ANTERO RESOURCES CORPORATION



WILLOW LAND SURVEYING, PLLC	
P.O. BOX 17, PENNSBORO, WV 26415	
(304) 659-1717	J

DATE: 09/19/22

DRAWN BY: D.L.P.

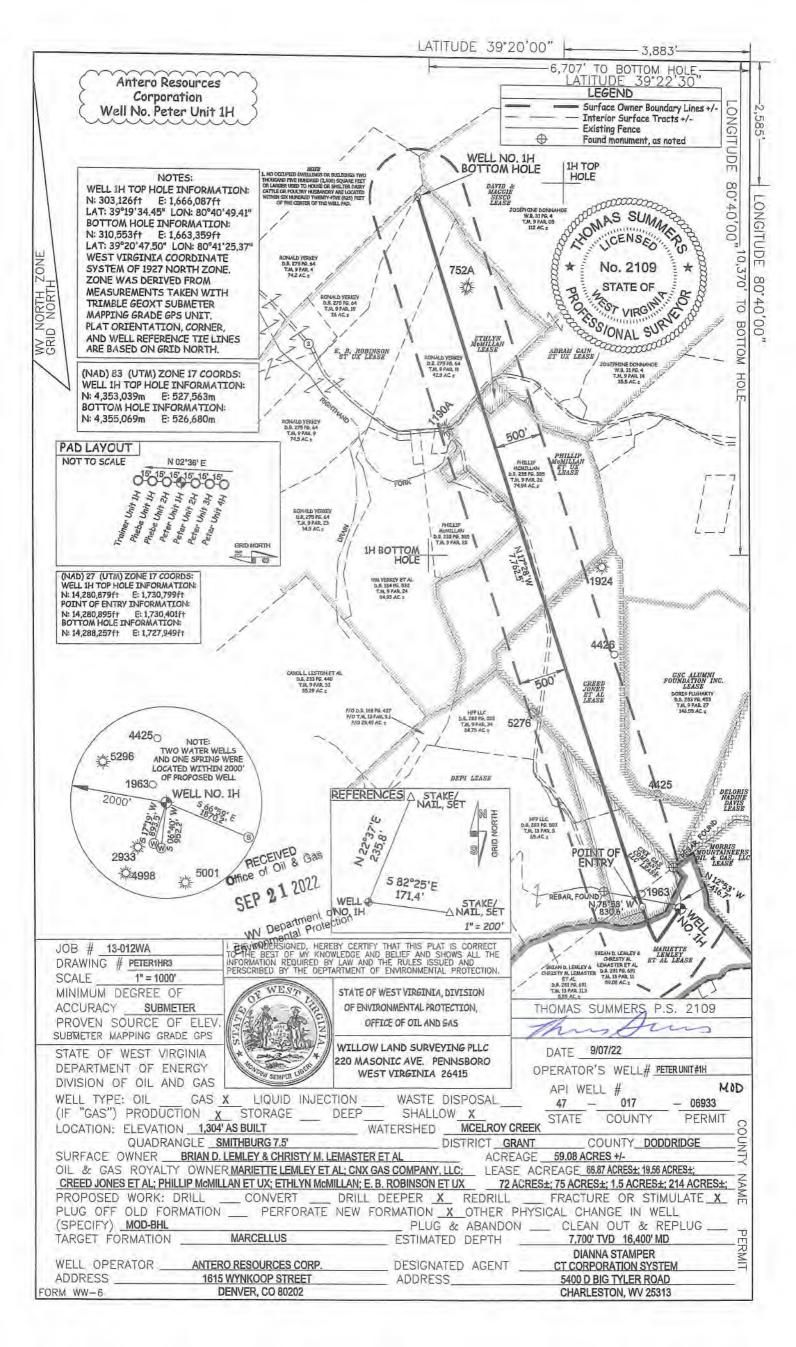
OB #: 22-005WA FILE: PETER1HAOR.DWG 0'

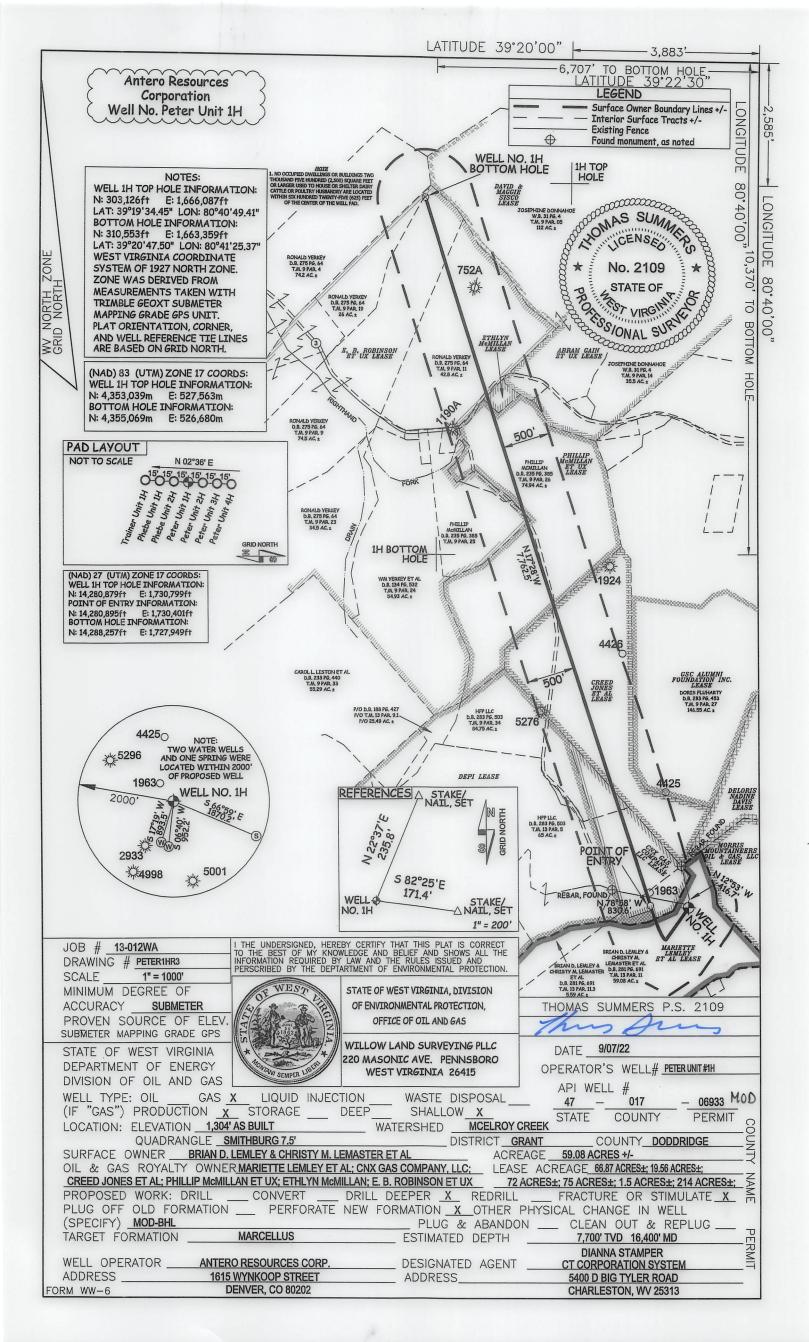
SCALE: 1-INCH = 2000-FEET 2000'

4000'

6000'

UWI (APINum)	Well Name	Well Number	Operator	Historical Operator	TD	Perforated Interval (shallowest, deepest)	Perforated Formation(s)	Producible Formation(s) not perf'd
47017311900000	A C BALLOUZ	1		Control of the Control of the Control	2,350		BigInjun	Warren, Speechly, Balltown, Riley, Benson
47017052760000	HAMER I C CO	8592	DIVERSIFIED PROD LLC	DOMINION EXPL&PROD	2,840	1962 - 2642	Keener, Squaw, Gordon	Warren, Speechly, Balltown, Riley, Benson
47017019630000				HOPE NATURAL GAS	2,294		Big Injun, Squaw	Alexander, Berea
	CHARLES I MCMILLAN			HOPE NATURAL GAS	2,044	STATE OF THE PARTY OF THE PARTY OF	Big Injun, Squaw	Alexander, Berea





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 Bo	ook/Page	
Mariette Lemley, et al Lease				
Mariette Lemley, et al	S&K Land Company	1/8	0114/0075	
S&K Land Company	Mert Development, Inc.	Assignment	0115/0110	
Mert Development, Inc.	Continental Reserves 1980-E	Assignment	0123/0022	
Continental Reserves 1980-E	Appalachian Energy Development Corporation	Assignment	0150/0251	
Appalachian Energy Development Corporation	Appalachian Energy Reserves, Inc	Affidavit of Identity	0019/0210	
Appalachian Energy Reserves, Inc.	Jay Shearer	Assignment	0179/0146	
Jay Shearer	Clowser Production Company	Assignment	0285/0420	
Clowser Production Company	Antero Resources Appalachian Corporation	Assignment	0285/0417	
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	0046/0523	
DEPI Lease				
Dominion Exploration & Production Inc.	Dominion Appalachian Development, LLC	1/8	0230/0569	
Dominion Appalachian Development, LLC	Antero Resources Appalachian Corporation	Assignment	0231/0145	
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	0046/0523	
CNX Gas Company LLC Lease				
CNX Gas Company LLC	Antero Resources Corporation	Assignment	506/507	
Creed Jones et al Lease				
Creed Jones, et al	Charles A. F. Randolph	1/8	0028/0409	
Charles A. F. Randolph	Hope Natural Gas Company	Assignment	0034/0237	
Hope Natural Gas Company	Consolidated Gas Supply Corporation	Merger	0143/0345	
Consolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation	Assignment	0135/0583	
Consolidated Gas Transmission Corporation	CNG Transmission Corporation	Merger	0051/0795	
CNG Transmission Corporation	Dominion Transmission, Inc.	Merger	0058/0362	
Dominion Transmission, Inc.	Antero Resources Appalachian Corporation	Assignment	0230/0113	
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	0046/0523	
Phillip McMillan et ux Lease		RECEIVED	- totavorae	
Phillip McMillian et ux	Emax Oil Company	1/8+ Office of Oil & Gas	362/85	
Emax Oil Company	Antero Resources Corporation	Assignment SEP 2 1 2022	358/154	
E.B. Robinson et ux Lease	and the second s			
E.B. Robinson et ux	Cabot Oil and Gas Corporation	1/8	174/525	
Cabot Oil and Gas Corporation	Enervest Appalachía LP	AssignmentWV Department of Assignment Protection	186/6	
Enervest Appalachia LP	CGAS Properties LP	Assignment Protection	220/357	
CGAS Properties LP	Winter Moon Energy Company LLC & Chesapeake Appalachia LLC	Assignment	258/188	
Winter Moon Energy Company LLC & Chesapeake Appalachia LLC	Antero Resources Corporation	Assignment	373/703	
Ethlyn McMillian Lease				
Ethlyn McMillian	Emax Oil Company	1/8+	370/582	
Emax Oil Company	Antero Resources Corporation	Assignment	358/154	

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

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

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

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

Lease Name Number	or Grantor, Lessor,	etc. Grantee, Lessee, etc.	Royalty	Book/Page	2.
E.B. Robinson et ux	Lease				
	E.B. Robinson et ux	Cabot Oil and Gas Corporation	1/8		174/525
	Cabot Oil and Gas Corporation	Enervest Appalachia LP	Assignment		186/6
	Enervest Appalachia LP	CGAS Properties LP	Assignment		220/357
	GAS Properties LP	Winter Moon Energy Company LLC & Chesape	eake Appalachia LLC	Assignment	258/188
		& Chesapeake Appalachia LLC Antero Resou	rces Corporation	Assignment	373/703

*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:

Office of Oil and Gas, including but not limited to the following:

Office of Oil & Gas

- 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

SEP 2 1 2022

WV Department of Environmental Protection

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

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



September 19, 2022

West Virginia Department of Environmental Protection Office of Oil and Gas 601 57th Street Charleston, WV 25304 Antero Resources 1615 Wynkoop Street Denver, CO 80202 Office 303.357.7310 Fax 303.357.7315

Antero Resources Corporation (Antero) would like to submit the following permit modification for 5 approved wells on the Lemley Pad. We are requesting to extend the lateral length. Peter Unit 1H-4H (47-017-06933, 47-017-06934, 47-017-06935, 47-017-06936) and Trainer Unit 1H (47-017-06939).

All are Expeditul

Attached you will find the following documents:

- > REVISED Form WW-6B
- REVISED Form WW-6A1, which shows the new leases we will be drilling into
- ➤ REVISED Mylar Plats

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

Thank you in advance for your consideration.

Sincerely,

Mallory Stanton Permitting Supervisor

Antero Resources Corporation

Enclosures

RECEIVED Office of Oil & Gas

SEP 2 1 2022

WV Department of Environmental Protection



Stansberry, Wade A <wade.a.stansberry@wv.gov>

Modification Horizontal H6A Well Work Permit (47-017-06933, 47-017-06934, 47-017-06935, 47-017-06936, 47-017-06939)

1 message

Stansberry, Wade A <wade.a.stansberry@wv.gov>

Wed, Oct 5, 2022 at 7:34 AM

To: Mallory Stanton <mstanton@anteroresources.com>, Diane Blair <dblair@anteroresources.com>, Dani DeVito <ddevito@shalepro.com>, David Sponaugle <dsponaug@assessor.state.wv.us>, "Ward, Samuel D" <samuel.d.ward@wv.gov>, "Blevins, Cragin" <cragin.blevins@wv.gov>

I have attached a copy of the newly issued well permit number(s). This will serve as your copy.

47-017-06933 - PETER UNIT 1H 47-017-06934 - PETER UNIT 2H 47-017-06935 - PETER UNIT 3H 47-017-06936 - PETER UNIT 4H 47-017-06939 - TRAINER UNIT 1H

If you have any questions, then please contact us here at the Office of Oil and Gas.

Thank you,

Wade A. Stansberry

Environmental Resource Specialist 3

West Virginia Department of Environmental Protection

Office of Oil & Gas

601 57th St. SE

Charleston, WV 25304

(304) 926-0499 ext. 41115

(304) 926-0452 fax

Wade.A.Stansberry@wv.gov

5 attachments

47-017-06934 - mod.pdf 1923K

47-017-06935 - mod.pdf 1936K

47-017-06936 - mod.pdf 1949K

47-017-06939 - mod.pdf 2272K

47-017-06933 - mod.pdf 1986K