

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, February 24, 2025 PERMIT MODIFICATION APPROVAL Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION 1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit Modification Approval for Marma Unit 2H

47-103-03699-00-00

Extended Lateral Length

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.

James A. Martin

Chief

Operator's Well Number: Marma Unit 2H

Farm Name: Dallison Lumber Company

U.S. WELL NUMBER: 47-103-03699-00-00

Horizontal 6A New Drill

Date Modification Issued: 2/24/2025

Promoting a healthy environment.

API NO. 47-103	_ 03699	
OPERATOR WE	LL NO.	Marma Unit 2H MOD
Well Pad Name	e: Cedar	Pad

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

1) Well Operator: Antero Resor	urces Corporal	494507062	103 - Wetze	Green	Pine Grove 7.5'	
		Operator ID	County	District	Quadrangle	
2) Operator's Well Number: Mar	ma Unit 2H MO	D Well Pad	Name: Cedar	Pad		
3) Farm Name/Surface Owner: D	allison Lumber Con	Public Road	Access: CR	52		
4) Elevation, current ground: A						
5) Well Type (a) Gas X Oil Underground Storage						
(b)If Gas Shall	ow X	Deep				
* *	zontal X	Беер				
6) Existing Pad: Yes or No Yes	iontai /					
7) Proposed Target Formation(s),						
Marcellus Shale: 7200' TVD, Ant		s- 55 feet, Associa	ted Pressure- 28	350#		
8) Proposed Total Vertical Depth:	7200' TVD					
9) Formation at Total Vertical Dep	pth: Marcellus					
10) Proposed Total Measured Dep	oth: 25700' ME)				
11) Proposed Horizontal Leg Leng	gth: 16799' *	Open to modifica	tion at a later	date		
12) Approximate Fresh Water Stra	ata Depths:	612'				
13) Method to Determine Fresh W	/ater Depths: 47	7103308970000 Offset well	records. Depths have t	een adjusted a	ccording to surface elevations.	
14) Approximate Saltwater Depth	s: 2193'					
15) Approximate Coal Seam Dept	ths: 1010'					
16) Approximate Depth to Possible Void (coal mine, karst, other): None Anticipated						
17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes No _X						
(a) If Yes, provide Mine Info:	Name:					
	Depth:					
DECEMBE	Seam:					
Office of the and Gas	Owner:					

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API NO. 47- 103 -	03699
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OPERATOR WELL NO. Marma Unit 2H MOD Well Pad Name: Cedar 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	J-55	94#	100'	100'	CTS, 96 Cu. Ft.
Fresh Water	13-3/8"	New	J-55	54.5#	662'	662'	CTS, 690 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	3200'	3200'	CTS, 1303 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P110-ICY	23#	25700'	25700'	CTS, 5548 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#			
Liners							

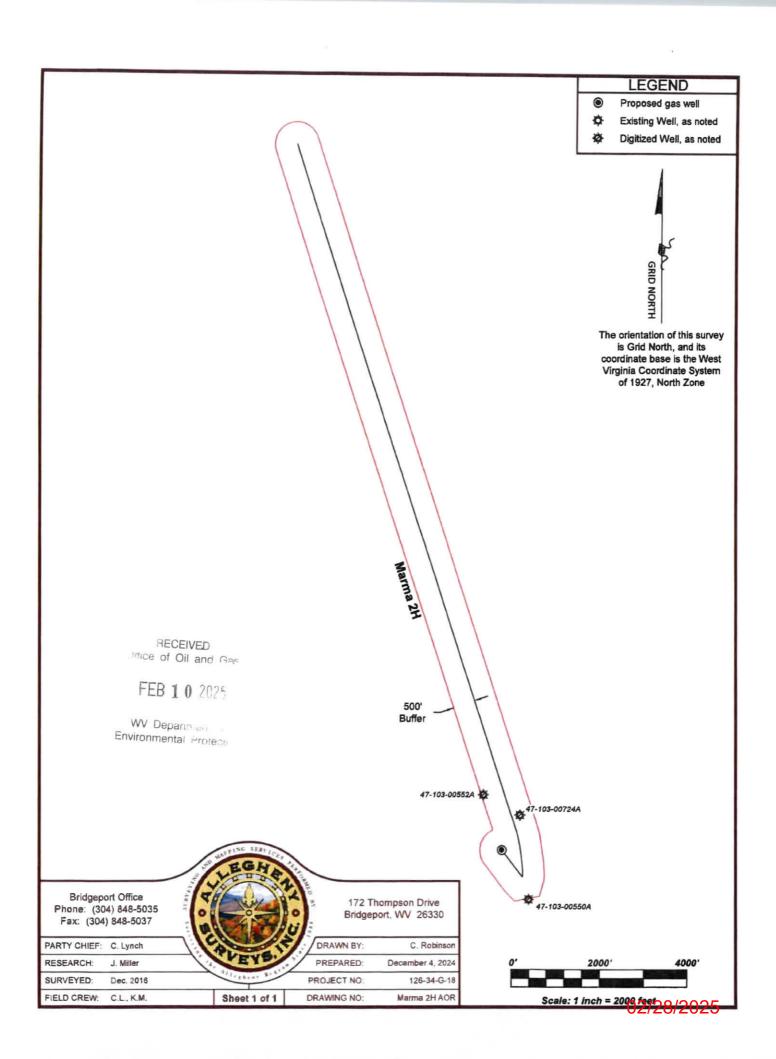
Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
20"	24"	0.375"	2250	50	Class A/L	~1.18
13-3/8"	17-1/2"	0.38"	2730	1000	Class A/L	~1.18
9-5/8"	12-1/4"	0.352"	3520	1500	Class A/L	~1.18
5-1/2"	8-3/4" & 8-1/2"	0.415"	14,360	2500	Class G/H	~1.8
2-3/8"	4.778"	0.19"	11,200			
	20" 13-3/8" 9-5/8" 5-1/2"	20" 24" 13-3/8" 17-1/2" 9-5/8" 12-1/4" 5-1/2" 8-3/4" & 8-1/2"	Size (in) Wellbore Diameter (in) Thickness (in) 20" 24" 0.375" 13-3/8" 17-1/2" 0.38" 9-5/8" 12-1/4" 0.352" 5-1/2" 8-3/4" & 8-1/2" 0.415"	Size (in) Wellbore Diameter (in) Thickness (in) Burst Pressure (psi) 20" 24" 0.375" 2250 13-3/8" 17-1/2" 0.38" 2730 9-5/8" 12-1/4" 0.352" 3520 5-1/2" 8-3/4" & 8-1/2" 0.415" 14,360	Size (in) Wellbore Diameter (in) Thickness (in) Burst Pressure (psi) Max. Internal Pressure (psi) 20" 24" 0.375" 2250 50 13-3/8" 17-1/2" 0.38" 2730 1000 9-5/8" 12-1/4" 0.352" 3520 1500 5-1/2" 8-3/4" & 8-1/2" 0.415" 14,360 2500	Size (in) Wellbore Diameter (in) Thickness (in) Burst Pressure (psi) Max. Internal Pressure (psi) Cement Type 20" 24" 0.375" 2250 50 Class A/L 13-3/8" 17-1/2" 0.38" 2730 1000 Class A/L 9-5/8" 12-1/4" 0.352" 3520 1500 Class A/L 5-1/2" 8-3/4" & 8-1/2" 0.415" 14,360 2500 Class G/H

PACKERS

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

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UWI (APINum)	Well Name	Well Number	Operator	Historical Operator	TD	Perforated Interval (shallowest, deepest)	B-4	
47103005520000	FREEMAN BLAKE 2	4785	MANUFACT LIGHT &HEAT	MANUFACT LIGHT &HEAT	2,170	the state (shortowest, deepest)	Perforated Formation(s)	Producible Formation(s) not perf'd
47103007240000	JAMES F PRENDERGAST	2908	PILLAR ENERGY LLC	COLUMBIA GAS TRNSMSS	2,585			
47103005500000	D R BARTRUG HEIRS	1	PILLAR ENERGY LLC	NEELY DESSIE	3,342		Big Injun	Weir, Benson, Alexander
	7				3,3 12			

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API NO. 4	17-	103	-	03699	
	22				

OPERATOR WELL NO. Marma Unit 2H MOD
Well Pad Name: Cedar Pad

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

Drill a new horizontal shallow well into the Marcellus Shale.

*Antero will be air drilling the fresh water string which makes it difficult to determine when fresh water is encountered. Therefore, we have built in a buffer for the casing setting depth which helps to ensure that all fresh water zones are covered.

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

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

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

- 21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 71.85 acres
- 22) Area to be disturbed for well pad only, less access road (acres): 18.45 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/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
Production: Tail cement- Class G/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 14 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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INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE Chapter 22, Article 6A, Section 5(a)(5) IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)

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

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

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
C: Coastal Forest Resources		Grantos, Essec, etc.	Royalty	DOOMTage
	Coastal Forest Resources Company	Antero Resources Corporation	1/8	Pooled Tract

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

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

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

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

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

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

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^{*}Co-tenancy utilization — Antero is utilizing the Co-tenancy Modernization and Majority Protection Act to proceed with the development of certain royalty owners' interests in this tract.

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Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
Z: Jenkins Miller Lease			u
Jenkins Miller	Hope Natural Gas Company		
Hope Natural Gas Company	Consolidated Gas Supply Corporation	1/8	0107/0056
Consolidated Gas Supply Corporation	Consolidated Gas Supply Corporation	Assignment	0233/0387
Consolidated Gas Transmission Corporation	Consolidated Gas Transmission Corporation Eastern States Oil & Gas Inc	Assignment	066A/0069
Eastern States Oil & Gas Inc		Assignment	076A/0232
Blazer Energy Corp	Blazer Energy Corp	Merger	0012/0253
Eastern States Oil & Gas Inc	Eastern States Oil & Gas Inc	Name Change	0012/0259
Equitable Production- Eastern States INC	Equitable Production- Eastern States INC	Name Change	WVSOS
Appalachian Natural Gas Trust	Appalachian Natural Gas Trust	Assignment	079A/0244
EQT Production Company	EQT Production Company	Merger	0096/0505
eq Froduction Company	Antero Resources Corporation	Assignment	230A/0801
C: Antero Minerals, LLC Lease			5000000 * 100 * 100 (100)
Antero Minerals, LLC	Antero Resources Corporation	- 10	
	randio nessarees est poration	1/8+	250A/0847
J: Stephen H. Stocker Lease			
tephen H. Stocker	Antero Resources Corporation	1/8+	376A/0864
: Eethor Buth Coop Loos		7.5	370A/0004
: Esther Ruth Coen Lease sther Ruth Coen	14 75 TEV		
stner kuth Coen	Antero Resources Corporation	1/8+	269A/0114
: Acropolis, Inc. Lease			
cropolis, Inc.	Antero Resources Corporation	× •ו	
**************************************	Antero Resources Corporation	1/8+	291A/0003
: Acropolis, Inc. Lease			
cropolis, Inc.	Antero Resources Corporation	1/8+	2014/0000
	**************************************	2/01	291A/0003
1: Acropolis, Inc. Lease			
cropolis, Inc.	Antero Resources Corporation	1/8+	289A/0495
: Chesapeake Appalachia, LLC Lease		· ·	20374 0433
hesapeake Appalachia, LLC	CHAID		
WN Production Company, LLC	SWN Production Company, LLC	1/8	157A/0640
ntero Exchange Properties, LLC	Antero Exchange Properties, LLC	Assignment	177A/0533
intero Exchange Properties, LLC	Antero Resources Corporation	Merger	0013/0311
: Venable Royalty, LTD, et al Lease			
enable Royalty, LTD, et al	Antero Resources Corporation	1/0.	
and the fact, and the fact of	Antero Resources Corporation	1/8+	300A/0885
: Venable Royalty, LTD, et al Lease			
enable Royalty, LTD, et al	Antero Resources Corporation	1/8+	300A/0885
			22374 0003
: Belinda K. Harrison Lease			
elinda K. Harrison	Antero Resources Corporation	1/8+	345A/0753
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Operator's Well Number

Marma Unit 2H MOD

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Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
F: Jay H. Renner Lease Jay H. Renner Spartan Exploration Company Acadian Energy Resources, LLC CB Energy, LLC B & R Construction, LLC B & R Holdings, Inc Stone Energy Corporation, LLC EQT Production Company	Spartan Exploration Company Acadian Energy Resources, LLC CB Energy, LLC B & R Construction, LLC B & R Holdings, Inc Stone Energy Corporation, LLC EQT Production Company Antero Resources Corporation	1/8 Assignment Assignment Assignment Assignment Assignment Assignment Assignment	089A/0093 103A/0193 108A/0491 108A/0521 118A/0694 179A/0848 183A/0305 385A/0323

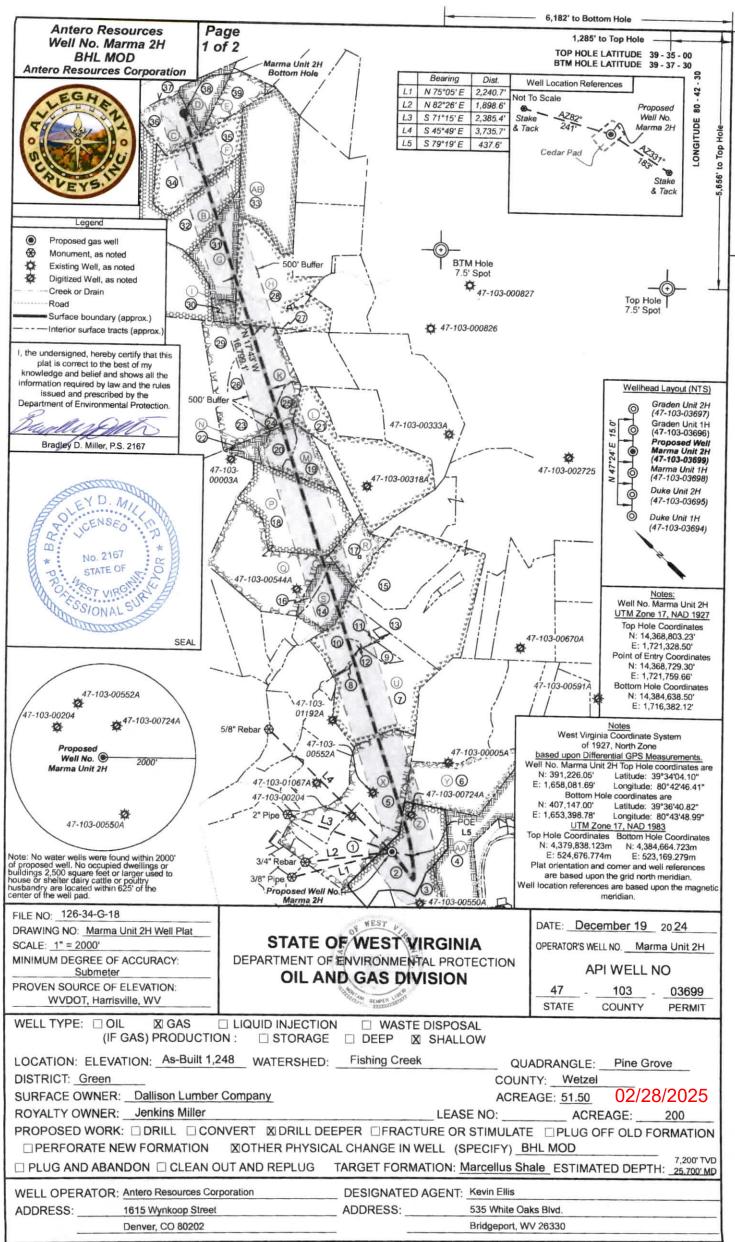
**Pooling/unitization – Antero has filed a horizontal well unitization application with the West Virginia Oil and Gas Conservation Commission that seeks to

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^{*}Co-tenancy utilization – Antero is utilizing the Co-tenancy Modernization and Majority Protection Act to proceed with development of certain royalty owners' interests in this tract.





Antero Resources Well No. Marma 2H BHL MOD Antero Resources Corporation



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_	Leases	
В	Belinda K. Harrison	
С	Coastal Forest Resources Company	
۵	Debra Carol Miller	
E	Debra Carol Miller	
F Jay H. Renner		
G	Venable Royalty, LTD, et al	
Н	Venable Royalty, LTD, et al	
	Piney Holdings, Inc.	
K	Chesapeake Appalachia, LLC	
L	Bounty Minerals, LLC	
М	Acropolis Inc	
Ν	Chesapeake Appalachia, LLC	
P	Acropolis Inc	
Q	Acropolis Inc	
R	The Tracy Living Trust	
S	Esther Ruth Coen	
U	Stephen H. Stocker	
X	Antero Minerals, LLC	
Y	James E. & Shawn L. Coen	
Z	Jenkins Miller	
AA	Eddie D. Dallison	
AB	Debra C. Miller	

ID	TM-Par	Owner	Bk/Pg	1.
1	13-40	Kenneth E. & Vicky A. Van Dyne		Acres
2	4-19	Dallison Lumber Company	357/204	12.00
3	14-34	Thelma Mason	53/205	51.50
4	14-20	Dallison Lumber Company Inc.	493/482	
5	13-26.7	John M. & Stanley D. Pittman	357/270	
6	14-16	Antero Midstream, LLC	458/837	00.00
7	13-17	Laura Ann Slater	491/484	
8	13-16	Blue Racer Midstream, LLC	423/93	83.50
9	13-17.1	Laura Ann & Clayton L. Slater	452/542	1.00
10	13-10	Blue Racer Midstream, LLC	461/185	6.50
11	13-11	Laura Ann Slater	452/542	25.99
12	13-10.1	Blue Racer Midstream, LLC	423/93	0.13
13	14-1	Kenneth & Vicky A. Van Dyne	452/550	0.93
14	9-60	Coss Heldings LL C	339/427	69.39
15	9-52	Coan Holdings LLC	492/815	14.58
16	9-60.1	WSD Properties	441/793	50.00
17	9-52.1	Coan Holdings LLC WSD Properties, LLC	492/815	8.42
18	9-42		441/793	25.00
19	9-31	WSD Properties, LLC	441/793	149.00
20	9-30	Richard David Hombeck	334/514	17.00
21	9-33	Richard David Hornbeck	334/514	15.25
22	9-29	Thomas Rogers & Eliot Stearns	352/98	50.00
23	9-29	Richard David Hornbeck	334/514	7.50
24	9-30	Richard David Hornbeck	334/514	18.75
25	9-19	Richard David Hornbeck	334/514	15.25
26		Richard David Hornbeck	334/514	9.50
27	9-15	Keith A. Milhoan	407/375	45.25
28	9-16	Donzel A. & Rebecca L. Hoprnbeck	346/373	1.00
29		Antero Resources Corporation	462/582	71.30
30	9-14	Timothy S. Harrison	408/280	25.05
31	9-4.1	Belinda Harrison	493/544	5.50
	4-43	Donzel A. & Rebecca L. Hopmbeck	346/373	35.30
32	3-38	Julie Marie Lemons		39.80
33	4-30	Debra C. Miller		76.80
34	3-29	Linda Kaye Gordon		26.00
35	4-29	Timothy S. Harrison		23.00
36	3-23	Timothy S. Harrison		25.50
37	21-4	Michael & Janet Miller		23.60
88	4-10	Debra C. Miller		17.50
9	4-11	Brandon Day Irrevable Trust		32.00

FILE NO: 126-34-G-18 DRAWING NO: Marma Unit 2H Well Plat SCALE: 1" = 2000' MINIMUM DEGREE OF ACCURACY: Submeter PROVEN SOURCE OF ELEVATION: WVDOT, Harrisville, WV	STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION OIL AND GAS DIVISION	DATE:				
WELL TYPE: □ OIL ☑ GAS □ LIQUID INJECTION □ WASTE DISPOSAL (IF GAS) PRODUCTION: □ STORAGE □ DEEP ☒ SHALLOW						
LOCATION: ELEVATION: As-Built 1,248 WATERSHED: Fishing Creek QUADRANGLE: Pine Grove DISTRICT: Green COUNTY: Wetzel O2/28/2025 SURFACE OWNER: Dallison Lumber Company ACREAGE: 51.50 ROYALTY OWNER: Jenkins Miller LEASE NO: ACREAGE: 200 PROPOSED WORK: DRILL CONVERT & DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION & OTHER PHYSICAL CHANGE IN WELL (SPECIFY) BHL MOD PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 25,700: MD						
WELL OPERATOR: Antero Resources Con ADDRESS: 1615 Wynkoop Street Denver, CO 80202	poration DESIGNATED AGENT: Kevin Ellis ADDRESS: 535 White O Bridgeport, V					