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west virginia department of environmental protection

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Office of Oil and Gas  
601 57<sup>th</sup> Street, S.E.  
Charleston, WV 25304  
(304) 926-0450  
fax: (304) 926-0452

Austin Caperton, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Tuesday, August 11, 2020  
PERMIT MODIFICATION APPROVAL  
Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION  
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit Modification Approval for SEAGROVE 2H  
47-095-02698-00-00

**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: SEAGROVE 2H  
Farm Name: RICHARD D. PYLES  
U.S. WELL NUMBER: 47-095-02698-00-00  
Horizontal 6A New Drill  
Date Modification Issued: August 11, 2020

Promoting a healthy environment.

WW-6B  
(04/15)

API NO. 47-095 - 02698  
OPERATOR WELL NO. Seagrave Unit 2H  
Well Pad Name: Pyles Pad

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

1) Well Operator: Antero Resources Corporation 494507062 095 - Tyler Ellsworth Porter Falls 7.5'  
Operator ID County District Quadrangle

2) Operator's Well Number: Seagrave Unit 2H Well Pad Name: Pyles Pad

3) Farm Name/Surface Owner: Richard D. Pyles Public Road Access: US Route 34

4) Elevation, current ground: 1081' Elevation, proposed post-construction: ~1081'

5) Well Type (a) Gas  Oil  Underground Storage   
Other

(b) If Gas Shallow  Deep   
Horizontal

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8/5/2020

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Marcellus Shale: 7100' TVD, Anticipated Thickness- 55 feet, Associated Pressure- 2850#

8) Proposed Total Vertical Depth: 7100' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 25900' MD

11) Proposed Horizontal Leg Length: 15973'

12) Approximate Fresh Water Strata Depths: 61'

13) Method to Determine Fresh Water Depths: 47-095-01958

14) Approximate Saltwater Depths: 2200'

15) Approximate Coal Seam Depths: None Identified

16) Approximate Depth to Possible Void (coal mine, karst, other): None Anticipated

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes  No

(a) If Yes, provide Mine Info: Name: \_\_\_\_\_  
Depth: \_\_\_\_\_  
Seam: \_\_\_\_\_  
Owner: \_\_\_\_\_

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Environmental Protection

**John Cragin**  
**Blevins**

Digitally signed by John Cragin  
Blevins  
Date: 2020.08.05 11:42:14 -04'00'

**CASING AND TUBING PROGRAM**

18)

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	20"	New	H-40	94#	80	80	CTS, 77 Cu. Ft.
Fresh Water	13-3/8"	New	J-55	54.5#	300	300	CTS, 417 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#	25900	25900	6714 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#			
Liners							

*JCS*  
8/5/2020

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	~1.18
Fresh Water	13-3/8"	17-1/2"	0.38"	2730	1000	Class A	~1.18
Coal	9-5/8"	12-1/4"	0.352"	3520	1500	Class A	~1.18
Intermediate							
Production	5-1/2"	8-3/4" & 8-1/2"	0.415"	12,630	2500	Lead-HPOZ & T&E-H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11,200			
Liners							

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**PACKERS**

WV Department of Environmental Protection

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



WW-6B  
(10/14)

API NO. 47-095 - 02698  
OPERATOR WELL NO. Seagrave Unit 2H  
Well Pad Name: Pyles 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.

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8/5/2020

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): 23.71 acres

22) Area to be disturbed for well pad only, less access road (acres): 10.00 acres

23) Describe centralizer placement for each casing string:

Conductor: no centralizers  
Surface Casing: one centralizer 10' above the float shoe, one on the insert float collar and one every 4th joint spaced up the hole to surface.  
Intermediate Casing: one centralizer above float joint, one centralizer 5' above float collar and one every 4th collar to surface.  
Production Casing: one centralizer at shoe joint and one every 3 joints to top of cement in intermediate casing.

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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

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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.



PERMIT MODIFICATION API # 47-095-02698

Seagrave Unit 2H

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Environmental Protection



Antero Resources Corporation

Seagrave Unit 2H - AOR



REMARKS  
No Wells of Interest

April 15, 2020

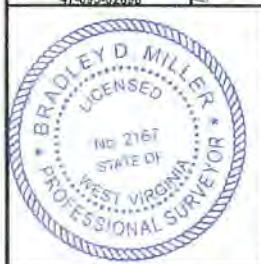
JCB  
8/5/2020



**Antero Resources**  
Well No. Seagrave 2H  
BHL MOD  
Antero Resources Corporation



- Wellhead Layout**
- Vulcan Unit 1H  
47-095-02701
  - Vulcan Unit 2H  
47-095-02702
  - Prosper Unit 1H  
47-095-02699
  - Prosper Unit 2H  
47-095-02700
  - Friend Unit 1H  
47-095-02695
  - Friend Unit 2H  
47-095-02696
  - Seagrave Unit 1H  
47-095-02697
  - Proposed  
Seagrave Unit 2H  
47-095-02698



I, the undersigned, hereby certify that this plat is correct to the best of my knowledge and belief and shows all the information required by law and the rules issued and prescribed by the Department of Environmental Protection.

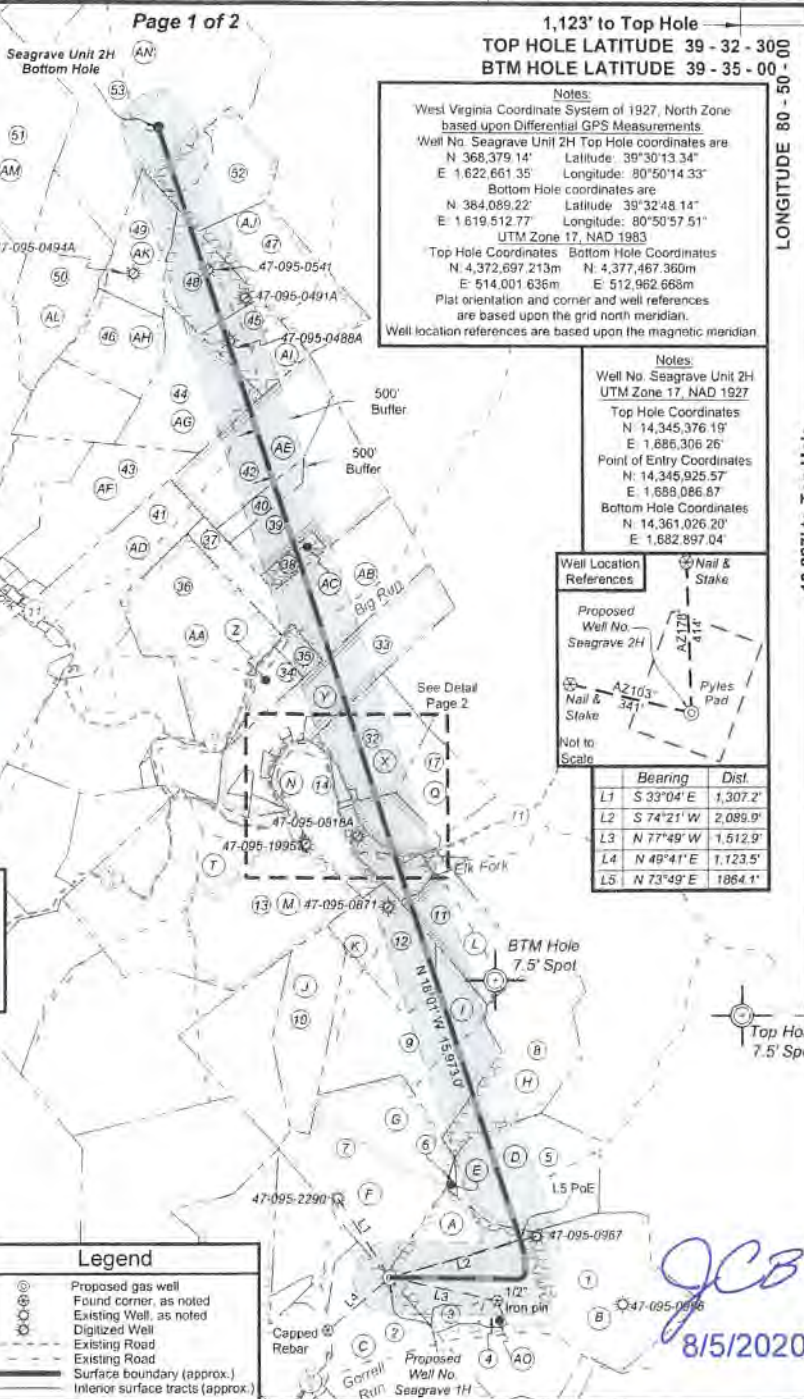
*Bradley D. Miller*  
Bradley D. Miller, P.S. 2167

Note: 3 water wells were found within 2000' of proposed well. No occupied dwellings or buildings 2,500 square feet or larger used to house or shelter dairy cattle or poultry husbandry are located within 625' of the center of the well pad.



**Legend**

- Proposed gas well
- Found corner, as noted
- Existing Well, as noted
- Digitized Well
- Existing Road
- Existing Road
- Surface boundary (approx.)
- Interior surface tracts (approx.)



**Notes:**  
West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements  
Well No. Seagrave Unit 2H Top Hole coordinates are  
N 368,379.14' Latitude: 39°30'13.34"  
E 1,622,661.35' Longitude: 80°50'14.33"  
Bottom Hole coordinates are  
N 384,089.22' Latitude: 39°32'48.14"  
E 1,619,512.77' Longitude: 80°50'57.51"  
UTM Zone 17, NAD 1983  
Top Hole Coordinates: N 4,372,697.213m E 514,001.636m  
Bottom Hole Coordinates: N 4,377,467.360m E 512,962.668m  
Plat orientation and corner and well references are based upon the grid north meridian.  
Well location references are based upon the magnetic meridian.

**Notes:**  
Well No. Seagrave Unit 2H UTM Zone 17, NAD 1927  
Top Hole Coordinates: N 14,345,376.19' E 1,686,306.26'  
Point of Entry Coordinates: N 14,345,925.57' E 1,688,086.67'  
Bottom Hole Coordinates: N 14,361,026.20' E 1,682,897.04'



	Bearing	Dist.
L1	S 33°04' E	1,307.2'
L2	S 74°21' W	2,089.9'
L3	N 77°49' W	1,512.9'
L4	N 49°41' E	1,123.5'
L5	N 73°49' E	1864.1'

4,505' to Bottom Hole

1,123' to Top Hole

TOP HOLE LATITUDE 39 - 32 - 30.00

BTM HOLE LATITUDE 39 - 35 - 00.00

LONGITUDE 80 - 50 - 50.00

13,827' to Top Hole

13,342' to Bottom Hole

*JCB*  
8/5/2020

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WV Department of Environmental Protection

FILE NO: 100-54-E-19  
DRAWING NO: Seagrave 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 July 15 2020  
OPERATOR'S WELL NO. Seagrave 2H  
API WELL NO  
47 095 02698  
STATE COUNTY PERMIT

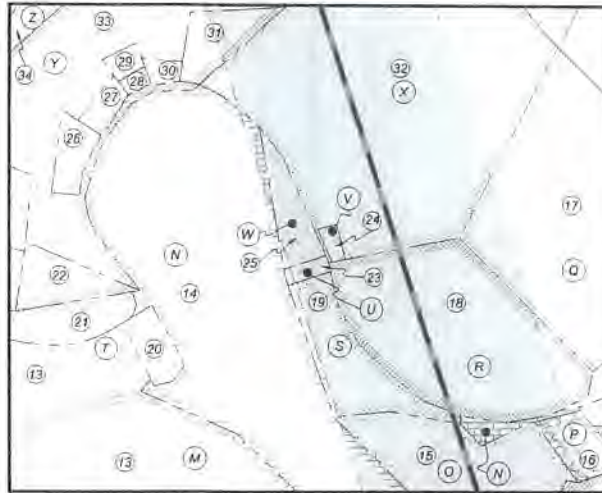
WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
(IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW

LOCATION: ELEVATION: As-Built 1081' WATERSHED: Outlet Middle Island Creek QUADRANGLE: Porter Falls  
DISTRICT: Ellsworth Will E. Momo Heirs Trust; Jerry R. Brightwell & Gwendolyn C. Davies. COUNTY: Tyler 31,719, 50.5;  
SURFACE OWNER: Richard D. Pyles BRC Appalachian Minerals I LLC (4); Antero Resources Corp. 34,38; 4,412, 81,482;  
ROYALTY OWNER: Richard D. Pyles, et ux; Helen E. Boggs, Donna Ables, Melissa Dawn Pilant, David Leek. LEASE NO: ACREAGE: 168.5 177, 9,04; 12,3, 50, 64;  
PROPOSED WORK:  DRILL  CONVERT  DRILL DEEPER  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  
 PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY) BHL MOD 102,75; 134; 61,73,125;  
 PLUG AND ABANDON  CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 7,100' TVD 52; 63, 71,283; 70; 6;  
25,900' MD

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



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



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8/5/2020

ID	TM/Par	Owner	DB/PG	Acres
1	16-42	Richard D. Pyles, et al	379/20	168.5
2	16-44	Robert A. Pyles, et al	335/482	87.82
3	16-42.1	Richard D. Pyles	336/815	4.56
4	16-42.4	Bonnie J. Hair	589/105	2.44
5	16-24	Harry Eastham, et al	AR54/518	64.00
6	16-21	Kayla Leek	531/56	61.73
7	16-22	Joesph L. Jr. & Karen Sitko	295/13	81.70
8	16-21	Kayla Leek	531/56	67.73
9	16-2	David E. Bowyer	622/775	80.75
10	18-1	Antero Midstream, Inc.	617/730	35.25
11	18-5	David Leek	422/752	34.38
12	18-4	Darrell J. Sole	227/376	35.00
13	15-9	Antero Midstream, Inc.	586/544	132.19
14	11-36	David W. Fiber	574/847	21.16
15	18-52	Darrell Sole	238/145	9.04
16	16-5.3	David Leek	434/453	1.46
17	11-40	Samuel L. & Peggy S. Leek	362/408	21.39
18	11-39	Ronnie H. Seagrave	361/236	12.30
19	11-37	Gary & Melissa Piant	348/717	4.41
20	10-53	Kathy M. & Doug O. Smith	331/220	1.10
21	10-52	Darwin & Shirley Martin	306/537	5.00
22	10-72	Darwin & Shirley Martin	322/28	1.99
23	11-82	Minerva Banks	250/652	0.59
24	11-36.1	Ronnie H. Seagrave	361/236	0.26
25	11-81	Stephen D. Riggs, et al	362/441	2.50
26	10-70	Darwin & Shirley Martin	326/490	1.19
27	11-32.2	Bernard R. & Denise F. McDougal	636/567	0.54
28	11-32.4	Tony Ware	453/256	0.24
29	11-32.1	Melissa Stiles	380/290	0.34
30	11-33	Gary L. & Shirley A. Felton	337/136	0.39
31	11-79	Gary L. & Shirley A. Felton	337/136	4.00
32	11-34	Michael W. & Brenda S. Schmidt	582/483	31.74
33	11-32	Darwin & Shirley Martin	348/344	60.66
34	10-51	Charles E. & Laura Lynn Friend	334/839	8.03
35	10-50	Charles E. & Laura Lynn Friend	334/839	5.00
36	10-49	Charles E. & Laura Lynn Friend	334/836	71.52
37	11-1	Gertrude L. Pugh	314/140	70.00
38	11-2	Richard A. Fonner	415/796	6.00
39	11-3	Howard & Helen Young	198/126	59.90
40	10-69	Howard & Helen Young	198/126	5.10
41	10-46	Opal Carol Tallman	282/352	114.90
42	10-8	Helen M. Young	198/126	50.50
43	10-10	Ronald D. & Sandra Sue Martin	378/322	56.35
44	10-9	Brian E. & Barbara J. Courtney	344/626	52.00
45	10-7	Burl Rice	180/65	25.47
46	10-5	Brian E. & Barbara J. Courtney	344/626	30.00
47	10-68	Larry M. Adams	343/792	50.25
48	10-6	The Rutter Family Revocable Trust	340/715	24.53
49	10-5	Brian E. & Barbara J. Courtney	344/626	30.00
50	10-4	Stellan L. & Alberta B. Smolski	356/467	56.08
51	6-36	Dennis & Clista A. Heintzman	297/640	417.06
52	7-32	Robert A. Mercer	399/676	61.13
53	6-30.1	Larry M. & Amy B. Adams	369/344	150.34

Leases	
A	Richard D. Pyles, et ux
B	James F. Doan, et ux
C	Helen E. Boggs
D	BRC Appalachian Minerals I, LLC
E	BRC Appalachian Minerals I, LLC
F	Joseph L. Sitko, et ux
G	BRC Appalachian Minerals I, LLC
H	BRC Appalachian Minerals I, LLC
I	BRC Appalachian Minerals I, LLC
J	BRC Appalachian Minerals I, LLC
K	BRC Appalachian Minerals I, LLC
L	David Leek
M	Will E. Morris Trust
N	Kathy Marie Smith
O	Donna Ables
P	David Leek
Q	Reita Jane Hall
R	Antero Resources Corp.
S	Melissa Dawn Piant, et vir
T	Jerry Shoemaker
U	OPEN
V	OPEN
W	OPEN
X	Jerry R. Brightwell & Gwendolyn C. Davies
Y	Haught Family Trust
Z	Karen J. Wolfe
AA	Darrell Sole
AB	Ridgetop Capital
AC	Richard A. Fonner
AD	Allen Smith
AE	Helen M. Karcinski, et al
AF	B&C Oil & Gas Company
AG	BRC Appalachian Minerals I, LLC
AH	B&C Oil and Gas Company
AI	Linda K. Loehr
AJ	Will E. Morris Heir Trust
AK	B&C Oil & Gas Company
AL	Rose Enterprises, LLC
AM	BRC Appalachian Minerals I, LLC
AN	NO LEASE
AO	Dustin A. Hendershot

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AUG 10 2020  
WV Department of Environmental Protection

FILE NO: 100-54-E-19  
DRAWING NO: Seagrave 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

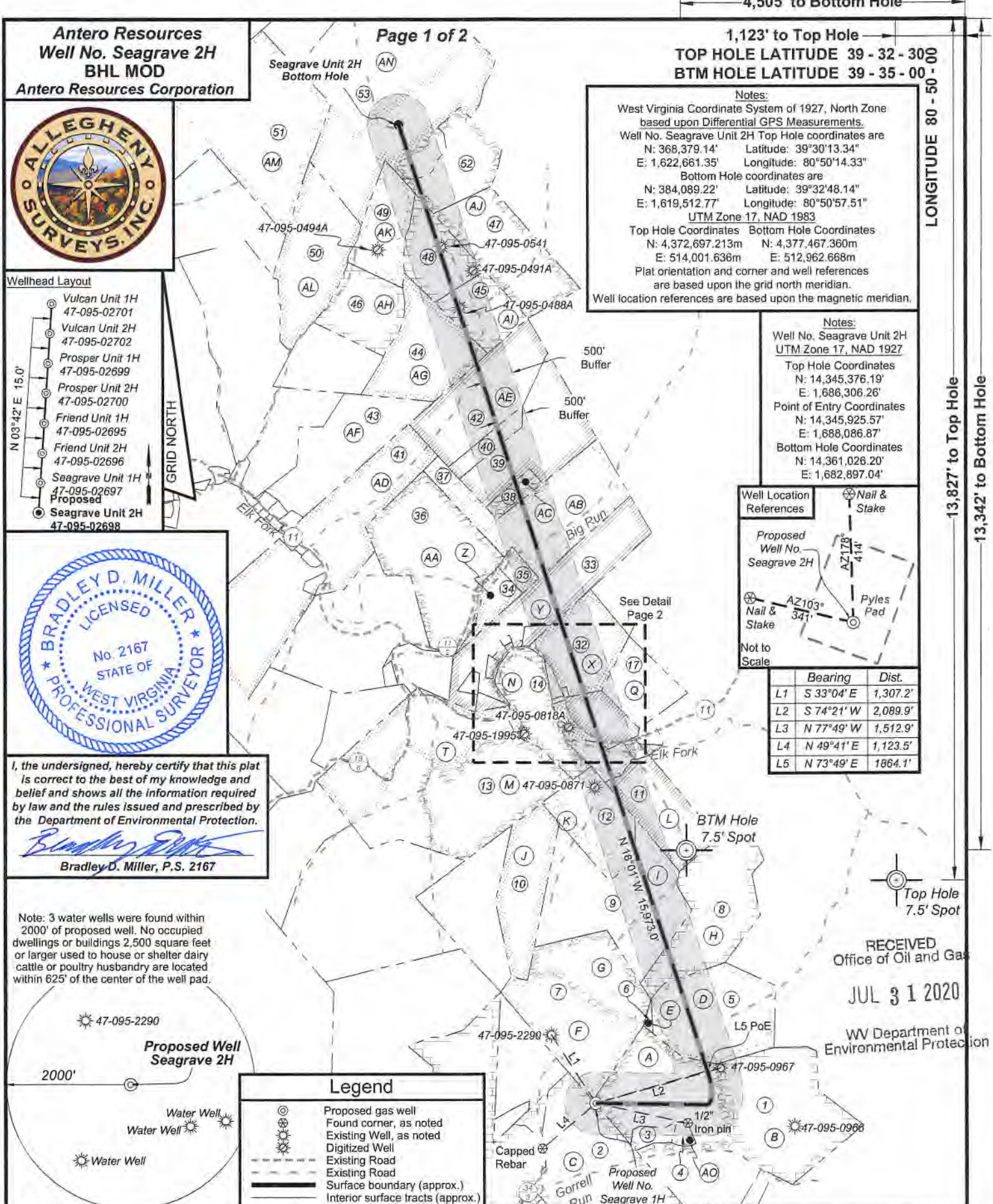
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SURFACE OWNER: Richard D. Pyles Richard A. Fonner; Helen M. Karcinski, et al; Rosa Enterprises, LLC; Linda K. Loehr; Haught Family Trust; Ridgetop Capital, ACREAGE: 168.5 34.38; 4.412; 81.482;  
ROYALTY OWNER: Richard D. Pyles, et ux; Helen E. Boggs; Donna Ables; Melissa Dawn Piant; David Leek; LEASE NO: ACREAGE: 102.75; 134; 61.73125;  
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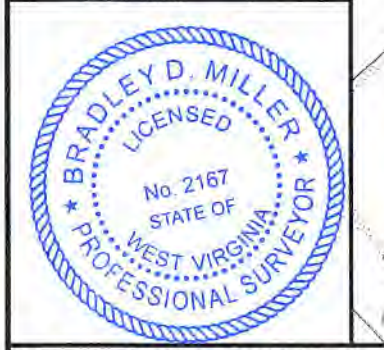


**Antero Resources**  
**Well No. Seagrave 2H**  
**BHL MOD**  
**Antero Resources Corporation**



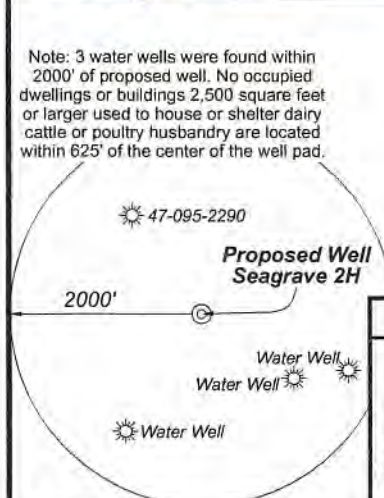
**Wellhead Layout**

Vulcan Unit 1H	47-095-02701
Vulcan Unit 2H	47-095-02702
Prosper Unit 1H	47-095-02699
Prosper Unit 2H	47-095-02700
Friend Unit 1H	47-095-02695
Friend Unit 2H	47-095-02696
Seagrave Unit 1H	47-095-02697
Proposed	
Seagrave Unit 2H	47-095-02698



I, the undersigned, hereby certify that this plat is correct to the best of my knowledge and belief and shows all the information required by law and the rules issued and prescribed by the Department of Environmental Protection.

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



**Legend**

	Proposed gas well
	Found corner, as noted
	Digitized Well
	Existing Well, as noted
	Existing Road
	Surface boundary (approx.)
	Interior surface tracts (approx.)

**Notes:**  
 West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.  
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 E: 1,622,661.35'    Longitude: 80°50'14.33"  
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 E: 1,619,512.77'    Longitude: 80°50'57.51"  
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FILE NO: 100-54-E-19  
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 Submeter  
 PROVEN SOURCE OF ELEVATION:  
 WVDOT, Harrisville, WV

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

DATE: July 15 2020  
 OPERATOR'S WELL NO. Seagrave 2H  
 API WELL NO **MOD1**  
 47 - 095 - 02698  
 STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
 (IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW

LOCATION: ELEVATION: As-Built 1081' WATERSHED: Outlet Middle Island Creek QUADRANGLE: Porter Falls  
 DISTRICT: Ellsworth COUNTY: Tyler  
 SURFACE OWNER: Richard D. Pyles ACREAGE: 168.5  
 ROYALTY OWNER: Richard D. Pyles, et ux; Helen E. Boggs; Donna Ables; Melissa Dawn Piliant; David Leek; LEASE NO: \_\_\_\_\_ ACREAGE: 52; 83; 71.283; 70; 6;

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: 7,100' TVD  
25,900' MD

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

RECEIVED  
 Office of Oil and Gas  
 JUL 31 2020  
 WV Department of  
 Environmental Protection

4,505' to Bottom Hole

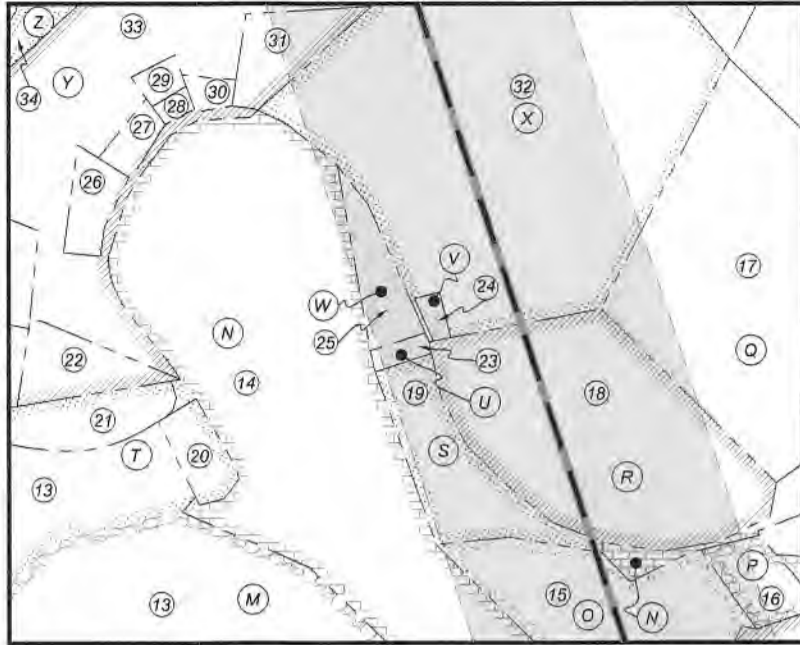
1,123' to Top Hole  
 TOP HOLE LATITUDE 39 - 32 - 30  
 BTM HOLE LATITUDE 39 - 35 - 00

LONGITUDE 80 - 50 - 50

13,827' to Top Hole

13,342' to Bottom Hole





ID	TM/Par	Owner	DB/PG	Acres
1	16-42	Richard D. Pyles	379/20	168.5
2	16-44	Robert A. Pyles, et al	335/482	87.82
3	16-42.1	Richard D. Pyles	336/815	4.56
4	16-42.4	Bonnie J. Hair	569/105	2.44
5	16-24	Harry Eastham, et al	AR54/518	64.00
6	16-21	Kayla Leek	531/56	61.73
7	16-22	Joseph L. Jr. & Karen Sitko	296/13	81.70
8	16-21	Kayla Leek	531/56	67.73
9	16-2	David E. Bowyer	622/775	80.75
10	16-1	Antero Midstream, Inc.	617/739	35.25
11	16-5	David Leek	422/762	34.38
12	16-4	Darrell J. Sole	227/376	35.00
13	15-9	Antero Midstream, Inc.	586/544	132.19
14	11-36	David W. Fiber	574/847	21.16
15	16-52	Darrell Sole	238/145	9.04
16	16-5.3	David Leek	434/453	1.46
17	11-40	Samuel L. & Peggy S. Leek	362/408	21.39
18	11-39	Ronnie H. Seagrave	361/236	12.30
19	11-37	Gary & Melissa Piliant	348/717	4.41
20	10-53	Kathy M. & Doug O. Smith	331/220	1.10
21	10-52	Darwin & Shirley Martin	306/537	5.00
22	10-72	Darwin & Shirley Martin	322/28	1.99
23	11-82	Minerva Banks	250/652	0.59
24	11-36.1	Ronnie H. Seagrave	361/236	0.26
25	11-81	Stephen D. Riggs, et al	362/441	2.50
26	10-70	Darwin & Shirley Martin	326/490	1.19
27	11-32.2	Bernard R. & Denise F. McDougal	636/587	0.54
28	11-32.4	Tony Ware	453/256	0.24
29	11-32.1	Melissa Stiles	380/290	0.34
30	11-33	Gary L. & Shirley A. Felton	337/136	0.39
31	11-79	Gary L. & Shirley A. Felton	337/136	4.00
32	11-34	Michael W. & Brenda S. Schmidt	582/483	31.74
33	11-32	Darwin & Shirley Martin	348/344	60.66
34	10-51	Charles E. & Laura Lynn Friend	334/839	8.03
35	10-50	Charles E. & Laura Lynn Friend	334/839	5.00
36	10-49	Charles E. & Laura Lynn Friend	334/836	71.52
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38	11-2	Richard A. Fonner	415/796	6.00
39	11-3	Howard & Helen Young	198/126	59.90
40	10-69	Howard & Helen Young	198/126	5.10
41	10-46	Opal Carol Tallman	282/382	114.00
42	10-8	Helen M. Young	198/126	50.50
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44	10-9	Brian E. & Barbara J. Courtney	344/626	52.00
45	10-7	Burl Rice	180/65	25.47
46	10-5	Brian E. & Barbara J. Courtney	344/626	30.00
47	10-68	Larry M. Adams	343/792	50.25
48	10-6	The Rutter Family Revocable Trust	340/715	24.53
49	10-5	Brian E. & Barbara J. Courtney	344/626	30.00
50	10-4	Stefan L. & Alberta B. Smolski	356/467	56.08
51	6-36	Dennis & Clista A. Heintzman	297/640	417.06
52	7-32	Robert A. Mercer	399/676	61.13
53	6-30.1	Larry M. & Amy B. Adams	369/344	150.34

Leases	
A	Richard D. Pyles, et ux
B	James F. Doan, et ux
C	Helen E. Boggs
D	BRC Appalachian Minerals I, LLC
E	BRC Appalachian Minerals I, LLC
F	Joseph L. Sitko, et ux
G	BRC Appalachian Minerals I, LLC
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L	David Leek
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O	Donna Ables
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Q	Reita Jane Hall
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S	Melissa Dawn Piliant, et vir
T	Jerry Shoemaker
U	OPEN
V	OPEN
W	OPEN
X	Jerry R. Brightwell & Gwendolyn C. Davies
Y	Haught Family Trust
Z	Karen J. Wolfe
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AB	Ridgetop Capital
AC	Richard A. Fonner
AD	Allen Smith
AE	Helen M. Karcinski, et al
AF	B&C Oil & Gas Company
AG	BRC Appalachian Minerals I, LLC
AH	B&C Oil and Gas Company
AI	Linda K. Loehr
AJ	Will E. Morris Heir Trust
AK	B&C Oil & Gas Company
AL	Rose Enterprises, LLC
AM	BRC Appalachian Minerals I, LLC
AN	NO LEASE
AO	Dustin A. Hendershot

RECEIVED  
Office of Oil and Gas

JUL 31 2020

WV Department of  
Environmental Protection

FILE NO: 100-54-E-19  
DRAWING NO: Seagrave 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: July 15 2020  
OPERATOR'S WELL NO. Seagrave 2H  
API WELL NO MOD/  
47 - 095 - 02698  
STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
(IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW

LOCATION: ELEVATION: As-Built 1081' WATERSHED: Outlet Middle Island Creek QUADRANGLE: Porter Falls  
DISTRICT: Ellsworth COUNTY: Tyler  
SURFACE OWNER: Richard D. Pyles ACREAGE: 168.5  
ROYALTY OWNER: Richard D. Pyles, et ux; Helen E. Boggs; Donna Ables; Melissa Dawn Piliant; David Leek; LEASE NO: ACREAGE: 52; 83; 71.283; 70; 6;  
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: 25,900' MD

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



**Antero Resources**  
**Well No. Seagrave 2H**  
**BHL MOD**  
**Antero Resources Corporation**



**Wellhead Layout**

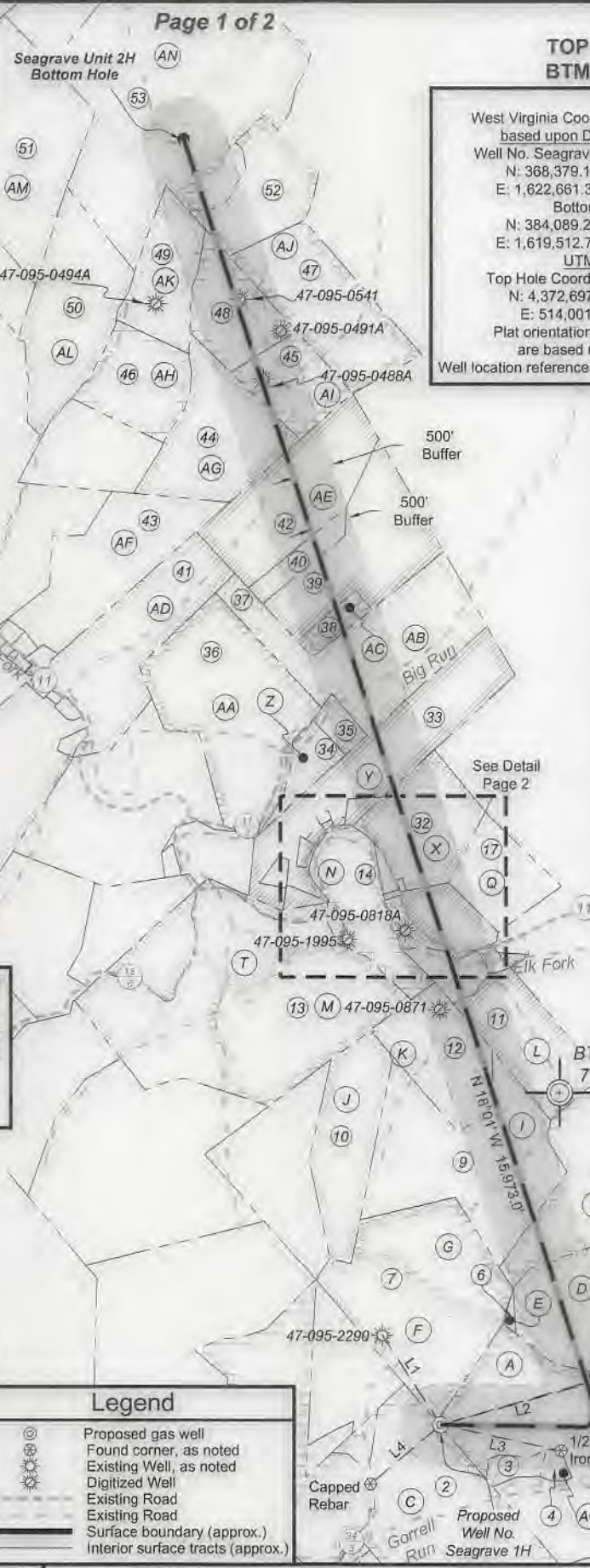
- Vulcan Unit 1H  
47-095-02701
- Vulcan Unit 2H  
47-095-02702
- Prosper Unit 1H  
47-095-02699
- Prosper Unit 2H  
47-095-02700
- Friend Unit 1H  
47-095-02695
- Friend Unit 2H  
47-095-02696
- Seagrave Unit 1H  
47-095-02697
- Proposed
- Seagrave Unit 2H  
47-095-02698



I, the undersigned, hereby certify that this plat is correct to the best of my knowledge and belief and shows all the information required by law and the rules issued and prescribed by the Department of Environmental Protection.

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

Note: 3 water wells were found within 2000' of proposed well. No occupied dwellings or buildings 2,500 square feet or larger used to house or shelter dairy cattle or poultry husbandry are located within 625' of the center of the well pad.



4,505' to Bottom Hole

1,123' to Top Hole  
**TOP HOLE LATITUDE 39 - 32 - 30.50**  
**BTM HOLE LATITUDE 39 - 35 - 00.50**

LONGITUDE 80 - 50 - 50

13,827' to Top Hole

13,342' to Bottom Hole

**Notes:**  
 West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.  
 Well No. Seagrave Unit 2H Top Hole coordinates are  
 N: 368,379.14'    Latitude: 39°30'13.34"  
 E: 1,622,661.35'    Longitude: 80°50'14.33"  
 Bottom Hole coordinates are  
 N: 384,089.22'    Latitude: 39°32'48.14"  
 E: 1,619,512.77'    Longitude: 80°50'57.51"  
 UTM Zone 17, NAD 1983  
 Top Hole Coordinates    Bottom Hole Coordinates  
 N: 4,372,697.213m    N: 4,377,467.360m  
 E: 514,001.636m    E: 512,962.668m  
 Plat orientation and corner and well references are based upon the grid north meridian.  
 Well location references are based upon the magnetic meridian.

**Notes:**  
 Well No. Seagrave Unit 2H  
 UTM Zone 17, NAD 1927  
 Top Hole Coordinates  
 N: 14,345,376.19'  
 E: 1,686,306.26'  
 Point of Entry Coordinates  
 N: 14,345,925.57'  
 E: 1,688,086.87'  
 Bottom Hole Coordinates  
 N: 14,361,026.20'  
 E: 1,682,897.04'



	Bearing	Dist.
L1	S 33°04' E	1,307.2'
L2	S 74°21' W	2,089.9'
L3	N 77°49' W	1,512.9'
L4	N 49°41' E	1,123.5'
L5	N 73°49' E	1864.1'

**Legend**

	Proposed gas well
	Found corner, as noted
	Existing Well, as noted
	Digitized Well
	Existing Road
	Surface boundary (approx.)
	Interior surface tracts (approx.)

FILE NO: 100-54-E-19  
 DRAWING NO: Seagrave 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: July 15 20 20  
 OPERATOR'S WELL NO. Seagrave 2H  
 API WELL NO MOD/  
 47 - 095 - 02698  
 STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
 (IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW

LOCATION: ELEVATION: As-Built 1081'    WATERSHED: Outlet Middle Island Creek    QUADRANGLE: Porter Falls  
 DISTRICT: Ellsworth    COUNTY: Tyler  
 SURFACE OWNER: Richard D. Pyles    ACREAGE: 168.5  
 ROYALTY OWNER: Richard D. Pyles, et ux; Helen E. Boggs; Donna Ables; Melissa Dawn Pplant; David Leek;    LEASE NO:    ACREAGE: 52; 83; 71,283; 70; 6;

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 PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY) BHL MOD  
 PLUG AND ABANDON  CLEAN OUT AND REPLUG    TARGET FORMATION: Marcellus Shale    ESTIMATED DEPTH: 7,100' TVD  
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 ADDRESS: 1615 Wynkoop Street    ADDRESS: 5400 D Big Tyler Road  
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C	Helen E. Boggs
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E	BRC Appalachian Minerals I, LLC
F	Joseph L. Sitko, et ux
G	BRC Appalachian Minerals I, LLC
H	BRC Appalachian Minerals I, LLC
I	BRC Appalachian Minerals I, LLC
J	BRC Appalachian Minerals I, LLC
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L	David Leek
M	Will E. Morris Trust
N	Kathy Marie Smith
O	Donna Ables
P	David Leek
Q	Reita Jane Hall
R	Antero Resources Corp.
S	Melissa Dawn Pflant, et vir
T	Jerry Shoemaker
U	OPEN
V	OPEN
W	OPEN
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Y	Haught Family Trust
Z	Karen J. Wolfe
AA	Darrell Sole
AB	Ridgetop Capital
AC	Richard A. Fonner
AD	Allen Smith
AE	Helen M. Karcinski, et al
AF	B&C Oil & Gas Company
AG	BRC Appalachian Minerals I, LLC
AH	B&C Oil and Gas Company
AI	Linda K. Loehr
AJ	Will E. Morris Heir Trust
AK	B&C Oil & Gas Company
AL	Rose Enterprises, LLC
AM	BRC Appalachian Minerals I, LLC
AN	NO LEASE
AO	Dustin A. Hendershot

FILE NO: 100-54-E-19  
 DRAWING NO: Seagrave 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: July 15 2020  
 OPERATOR'S WELL NO. Seagrave 2H  
 API WELL NO **MoDI**  
 47 - 095 - 02698  
 STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
 (IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW

LOCATION: ELEVATION: As-Built 1081' WATERSHED: Outlet Middle Island Creek QUADRANGLE: Porter Falls  
 DISTRICT: Ellsworth COUNTY: Tyler 31.719; 50.5;  
 SURFACE OWNER: Richard D. Pyles Will E. Morris Heirs Trust; Jerry R. Brightwell & Gwendolyn C. Davies; BRC Appalachian Minerals I, LLC (4); Antero Resources Corp., 34.38; 4.412; 81.482;  
 ROYALTY OWNER: Richard D. Pyles, et ux; Helen E. Boggs; Donna Ables; Melissa Dawn Pflant; David Leek; Richard A. Fonner; Helen M. Karcinski, et al; Rose Enterprises, LLC; ACREAGE: 168.5 177; 9.04; 12.3; 50; 64;  
 PROPOSED WORK:  DRILL  CONVERT  DRILL DEEPER  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION 102.75; 134; 61.73125;  
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 ADDRESS: 1615 Wynkoop Street ADDRESS: 5400 D Big Tyler Road  
 Denver, CO 80202 Charleston, WV 25313



WW-6A1

Operator's Well Number Seagrave Unit 2H

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

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

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

Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<b>Richard D. Pyles Lease</b>			
Richard D. Pyles	Antero Resources Corporation	1/8+	0562/0590
<b>BRC Appalachian Minerals LLC Lease (TM 16 PCL 24)</b>			
BRC Appalachian Minerals LLC	BRC Working Interest Company	1/8	0369/0300
BRC Working Interest Company	Chesapeake Appalachia LLC	Assignment	0369/0784
Chesapeake Appalachia LLC	Statoil USA Onshore Properties	Assignment	0378/0764
Statoil USA Onshore Properties	EQT Production Company	Assignment	0539/0239
EQT Production Company	Antero Resources Corporation	Assignment	0663/0001
<b>BRC Appalachian Minerals LLC Lease (TM 16 PCL 2)</b>			
BRC Appalachian Minerals LLC	BRC Working Interest Company	1/8	0369/0300
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Statoil USA Onshore Properties	EQT Production Company	Assignment	0539/0239
EQT Production Company	Antero Resources Corporation	Assignment	0663/0001
<b>BRC Appalachian Minerals LLC Lease (TM 16 PCL 3)</b>			
BRC Appalachian Minerals LLC	BRC Working Interest Company	1/8	0369/0300
BRC Working Interest Company	Chesapeake Appalachia LLC	Assignment	0369/0784
Chesapeake Appalachia LLC	Statoil USA Onshore Properties	Assignment	0378/0764
Statoil USA Onshore Properties	EQT Production Company	Assignment	0539/0239
EQT Production Company	Antero Resources Corporation	Assignment	0663/0001
<b>David Leek Lease</b>			
David Leek	Statoil USA Onshore Properties	1/8	0431/0198
Statoil USA Onshore Properties	EQT Production Company	Assignment	0539/0239
EQT Production Company	Antero Resources Corporation	Assignment	0022/0144
<b>Donna Ables Lease</b>			
Donna Ables	Antero Resources Corporation	1/8+	0550/0596
<b>Antero Resources Corporation Lease</b>			
<b>Jerry R. Brightwell &amp; Gwendolyn C. Davies Lease</b>			
Jerry R. Brightwell & Gwendolyn C. Davies	Antero Resources Corporation	1/8	0051/0105
<b>Haught Family Trust Lease</b>			
Haught Family Trust	Montani Energy LLC	1/8+	0392/0069
Montani Energy LLC	Antero Resources Appalachian Corporation	Assignment	0396/0759
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1

RECEIVED  
Office of Oil and Gas  
AUG 10 2020  
WV Department of  
Environmental Protection



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Chapter 22, Article 6A, Section 5(a)(5)  
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<b><u>Ridgetop Capital II Lease</u></b>			
Ridgetop Capital II	Antero Resources Corporation	1/8+	0628/0444
<b><u>Richard A. Fonner Lease</u></b>			
Richard A. Fonner	Statoil USA Onshore Properties	1/8+	0492/0701
Statoil USA Onshore Properties	EQT Production Company	Assignment	0539/0239
EQT Production Company	Antero Resources Corporation	Assignment	0022/0144
<b><u>Helen M. Karcinski et al Lease</u></b>			
Helen M. Karcinski et al	Antero Resources Corporation	1/8+	0606/0347
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EQT Production Company	Antero Resources Corporation	Assignment	0663/0001
<b><u>Linda K. Loehr Lease</u></b>			
Linda K. Loehr	Antero Resources Corporation	1/8+	0598/0636
<b><u>Will E. Morris Trust Lease</u></b>			
Will E. Morris Trust	Antero Resources Corporation	1/8+	0030/0678

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AUG 10 2020  
WV Department of  
Environmental Protection

WW-6A1  
(5/13)

Operator's Well No. Seagrave Unit 2H

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

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\*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:

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

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



Supplemental

95-02698 MOD1  
CK# 220329  
\$5000



July 29, 2020

Antero Resources  
1615 Wynkoop Street  
Denver, CO 80202  
Office 303.357.7310  
Fax 303.357.7315

West Virginia Department of Environmental Protection  
Office of Oil and Gas  
Attn: Ms. Laura Adkins  
601 57<sup>th</sup> Street  
Charleston, WV 25304

Ms. Laura Adkins:

Antero Resources Corporation (Antero) would like to submit the following permit modifications for the following expedited approved wells on the existing Pyles Pad: Friend Unit 1H (API # 47-095-02695), Friend Unit 2H (API # 47-095-02696) & Seagrave Unit 2H (API # 47-095-02698).

Attached you will find the following documents:

- REVISED Form WW-6B, which shows the updated POE & Measured Depth
- REVISED Form WW-6A1, which shows the new leases we will be drilling into
- REVISED Mylar Plat, which shows the new Lateral Length & Estimated Measured Depth
- AOR & As-Built Design

If you have any questions please feel free to contact me at (303) 357-7223.

Thank you in advance for your consideration.

Sincerely,

A handwritten signature in black ink, appearing to read "Megan Griffith", written over a white background.

Megan Griffith  
Permitting Agent  
Antero Resources Corporation

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Office of Oil and Gas

AUG 10 2020

WV Department of  
Environmental Protection

Enclosures





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Megan Griffith  
Permitting Agent  
Antero Resources Corporation

Enclosures

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Office of Oil and Gas

JUL 31 2020

WV Department of  
Environmental Protection



3

1970-07-08

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

Dear Sir:

Reference is made to your letter of July 7, 1970, regarding the proposed registration of the pesticide, DDT, for use as a household insecticide. The Agency is currently reviewing the data submitted in support of your application.

Very truly yours,

Richard M. Stewart, Director  
Office of Pesticide Registration  
U.S. Environmental Protection Agency  
Washington, D.C. 20460

cc: Mr. [Name] [Address]

cc: Mr. [Name] [Address]

cc: Mr. [Name] [Address]

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Office of Pesticide Registration

JUL 8 1970

U.S. Environmental Protection Agency  
Washington, D.C. 20460



WW-6B  
(04/15)

Check# 220329  
\$5,000.00  
7/30/2020

PERMIT MODIFICATION API # 47-095-02698

API NO. 47-095 - 02698

OPERATOR WELL NO. Seagrave Unit 2H

Well Pad Name: Pyles Pad

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

1) Well Operator: Antero Resources Corporation 494507062 095 - Tyler Ellsworth Porter Falls 7.5'  
Operator ID County District Quadrangle

2) Operator's Well Number: Seagrave Unit 2H Well Pad Name: Pyles Pad

3) Farm Name/Surface Owner: Richard D. Pyles Public Road Access: US Route 34

4) Elevation, current ground: 1081' Elevation, proposed post-construction: ~1081'

5) Well Type (a) Gas  Oil  Underground Storage   
Other

(b) If Gas Shallow  Deep   
Horizontal

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Marcellus Shale: 7100' TVD, Anticipated Thickness- 55 feet, Associated Pressure- 2850#

8) Proposed Total Vertical Depth: 7100' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 25900' MD

11) Proposed Horizontal Leg Length: 15973'

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12) Approximate Fresh Water Strata Depths: 61'

JUL 31 2020

13) Method to Determine Fresh Water Depths: 47-095-01958

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Environmental Protection

14) Approximate Saltwater Depths: 2200'

15) Approximate Coal Seam Depths: None Identified

16) Approximate Depth to Possible Void (coal mine, karst, other): None Anticipated

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes  No

(a) If Yes, provide Mine Info: Name: \_\_\_\_\_  
Depth: \_\_\_\_\_  
Seam: \_\_\_\_\_  
Owner: \_\_\_\_\_



WW-6B  
(04/15)

API NO. 47- 095 - 02698

OPERATOR WELL NO. Seagrave Unit 2H

Well Pad Name: Pyles Pad

18)

**CASING AND TUBING PROGRAM**

<b>TYPE</b>	<b>Size (in)</b>	<b>New or Used</b>	<b>Grade</b>	<b>Weight per ft. (lb/ft)</b>	<b>FOOTAGE: For Drilling (ft)</b>	<b>INTERVALS: Left in Well (ft)</b>	<b>CEMENT: Fill-up (Cu. Ft.)/CTS</b>
Conductor	20"	New	H-40	94#	80	80	CTS, 77 Cu. Ft.
Fresh Water	13-3/8"	New	J-55	54.5#	300	300	CTS, 417 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#	25900	25900	6714 Cu. Ft
Tubing	2-3/8"	New	N-80	4.7#			
Liners							

<b>TYPE</b>	<b>Size (in)</b>	<b>Wellbore Diameter (in)</b>	<b>Wall Thickness (in)</b>	<b>Burst Pressure (psi)</b>	<b>Anticipated Max. Internal Pressure (psi)</b>	<b>Cement Type</b>	<b>Cement Yield (cu. ft./k)</b>
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							

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WV Department of Environmental Protection

**PACKERS**

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

WW-6B  
(10/14)

API NO. 47- 095 - 02698  
OPERATOR WELL NO. Seagrave Unit 2H  
Well Pad Name: Pyles 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.

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): 23.71 acres

22) Area to be disturbed for well pad only, less access road (acres): 10.00 acres

23) Describe centralizer placement for each casing string:

Conductor: no centralizers  
Surface Casing: one centralizer 10' above the float shoe, one on the insert float collar and one every 4th joint spaced up the hole to surface.  
Intermediate Casing: one centralizer above float joint, one centralizer 5' above float collar and one every 4th collar to surface.  
Production Casing: one centralizer at shoe joint and one every 3 joints to top of cement in intermediate casing.

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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

WV Department of  
Environmental Protection

25) Proposed borehole conditioning procedures:

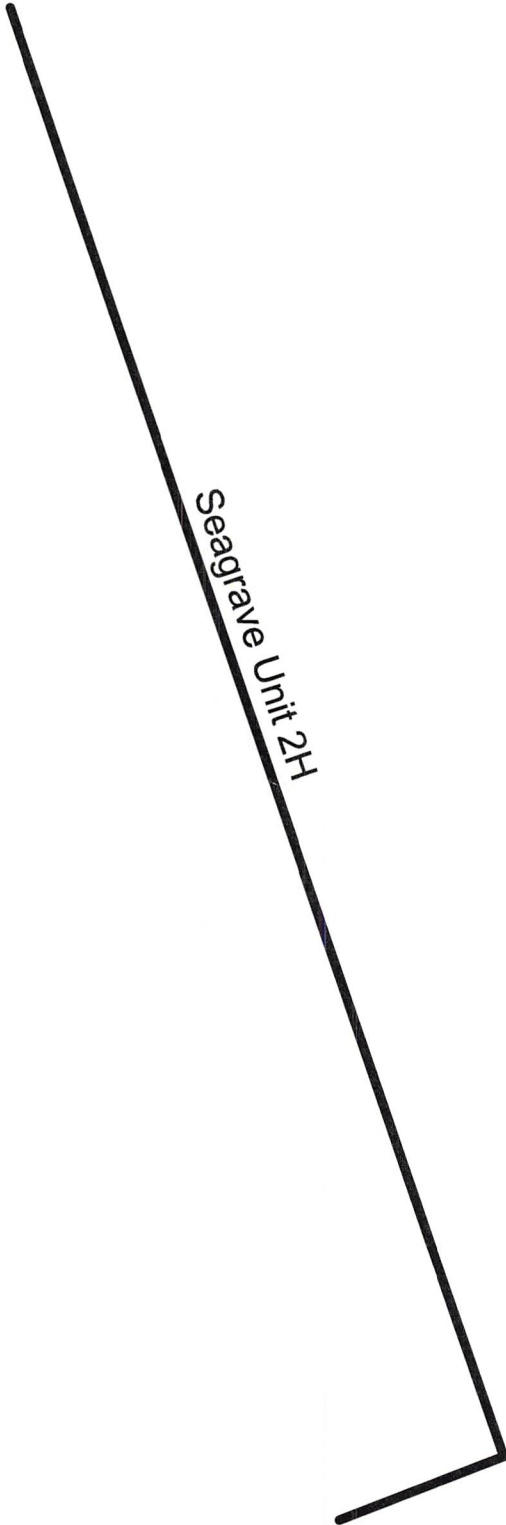
Conductor: blowhole clean with air, run casing, 10 bbls fresh water.  
Surface: blowhole clean with air, trip to conductor shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate pipe capacity + 40 bbls fresh water followed by 25 bbls bentonite mud, 10 bbls fresh water spacer.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





PERMIT MODIFICATION API # 47-095-02698



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Environmental Protection



Antero Resources Corporation

Seagrave Unit 2H - AOR



REMARKS  
No Wells of Interest

April 15, 2020

WW-6A1

Operator's Well Number Seagrave Unit 2H

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Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<b><u>Richard D. Pyles Lease</u></b>			
Richard D. Pyles	Antero Resources Corporation	1/8+	0562/0590
<b><u>BRC Appalachian Minerals LLC Lease (TM 16 PCL 24)</u></b>			
BRC Appalachian Minerals LLC	BRC Working Interest Company	1/8	0369/0300
BRC Working Interest Company	Chesapeake Appalachia LLC	Assignment	0369/0784
Chesapeake Appalachia LLC	Statoil USA Onshore Properties	Assignment	0378/0764
Statoil USA Onshore Properties	EQT Production Company	Assignment	0539/0239
EQT Production Company	Antero Resources Corporation	Assignment	0663/0001
<b><u>BRC Appalachian Minerals LLC Lease (TM 16 PCL 2)</u></b>			
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EQT Production Company	Antero Resources Corporation	Assignment	0663/0001
<b><u>BRC Appalachian Minerals LLC Lease (TM 16 PCL 3)</u></b>			
BRC Appalachian Minerals LLC	BRC Working Interest Company	1/8	0369/0300
BRC Working Interest Company	Chesapeake Appalachia LLC	Assignment	0369/0784
Chesapeake Appalachia LLC	Statoil USA Onshore Properties	Assignment	0378/0764
Statoil USA Onshore Properties	EQT Production Company	Assignment	0539/0239
EQT Production Company	Antero Resources Corporation	Assignment	0663/0001
<b><u>David Leek Lease</u></b>			
David Leek	Statoil USA Onshore Properties	1/8	0431/0198
Statoil USA Onshore Properties	EQT Production Company	Assignment	0539/0239
EQT Production Company	Antero Resources Corporation	Assignment	0022/0144
<b><u>Donna Ables Lease</u></b>			
Donna Ables	Antero Resources Corporation	1/8+	0550/0596
<b><u>Antero Resources Corporation Lease</u></b>			
<b><u>Jerry R. Brightwell &amp; Gwendolyn C. Davies Lease</u></b>			
Jerry R. Brightwell & Gwendolyn C. Davies	Antero Resources Corporation	1/8	0051/0105
<b><u>Haught Family Trust Lease</u></b>			
Haught Family Trust	Montani Energy LLC	1/8+	0392/0069
Montani Energy LLC	Antero Resources Appalachian Corporation	Assignment	0396/0759
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1

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<b><u>Ridgetop Capital II Lease</u></b>			
Ridgetop Capital II	Antero Resources Corporation	1/8+	0628/0444
<b><u>Richard A. Fonner Lease</u></b>			
Richard A. Fonner	Statoil USA Onshore Properties	1/8+	0492/0701
Statoil USA Onshore Properties	EQT Production Company	Assignment	0539/0239
EQT Production Company	Antero Resources Corporation	Assignment	0022/0144
<b><u>Helen M. Karcinski et al Lease</u></b>			
Helen M. Karcinski et al	Antero Resources Corporation	1/8+	0606/0347
<b><u>BRC Appalachian Minerals LLC Lease (TM 10 PCL 9)</u></b>			
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WW-6A1  
(5/13)

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