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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

Harold D. Ward, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Monday, March 28, 2022  
PERMIT MODIFICATION APPROVAL  
Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION  
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit Modification Approval for MULE UNIT 2H  
47-017-06917-00-00

**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.



James A. Martin  
Chief

Operator's Well Number: MULE UNIT 2H  
Farm Name: ANTERO MIDSTREAM, LLC  
U.S. WELL NUMBER: 47-017-06917-00-00  
Horizontal 6A New Drill  
Date Modification Issued: 3/28/2022

Promoting a healthy environment.

March 14, 2022

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

Mr. Brewer:

Antero Resources Corporation (Antero) would like to submit the following permit modifications for approved well on the existing Gaspar Pad; Mule Unit 2H (47-017-06917).

Attached you will find the following:

- Revised Form WW-6B
- Revised Form WW-6A1
- Revised Mylar Plat
- AOR

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Office of Oil and Gas

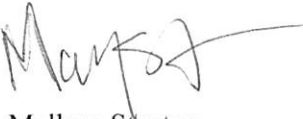
MAR 15 2022

WV Department of  
Environmental Protection

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 Manager  
Antero Resources Corporation

Enclosures

Ch# 4005045  
Amt \$ 2500  
Date 2/17/22

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

1) Well Operator: Antero Resources Corporation 494507062 017-Doddridge West Union West Union 7.5'  
Operator ID County District Quadrangle

2) Operator's Well Number: Mule Unit 2H Well Pad Name: Gaspar

3) Farm Name/Surface Owner: Antero Midstream Public Road Access: US Route 5

4) Elevation, current ground: 1216' Elevation, proposed post-construction: 1189'

5) Well Type (a) Gas X Oil \_\_\_\_\_ Underground Storage \_\_\_\_\_  
Other \_\_\_\_\_  
(b) If Gas Shallow X Deep \_\_\_\_\_  
Horizontal X

*JCB*  
*3/28/22*

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Marcellus Shale: 7600 TVD, Anticipated Thickness- 55 feet, Associated Pressure- 2850#

8) Proposed Total Vertical Depth: 7600 TVD

9) Formation at Total Vertical Depth: Marcellus

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Office of Oil and Gas

10) Proposed Total Measured Depth: 19,700'

MAR 15 2022

11) Proposed Horizontal Leg Length: 8819'

WV Department of  
Environmental Protection

12) Approximate Fresh Water Strata Depths: 200'

13) Method to Determine Fresh Water Depths: Offset well records, 47017047970000

14) Approximate Saltwater Depths: 1345'

15) Approximate Coal Seam Depths: None Anticipated

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: \_\_\_\_\_  
Seam: \_\_\_\_\_  
Owner: \_\_\_\_\_

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	16"	New	H-40	65#	100'	100'	CTS, 79 Cu. Ft.
Fresh Water	10-3/4"	New	J/K-55	40.4#	300	300' ✓	CTS, 164 Cu. Ft.
Coal	7-5/8"	New	P-110CY	26.4#	2500'	2500' -	CTS, 698 Cu. Ft.
Intermediate							
Production	5"	New	P-110 CY	18#	19700'	19700' ✓	CTS, 1937 Cu. Ft
Tubing	2-3/8"	New	N-80	4.7#			
Liners							

*Feb 3/28/22*

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	16"	20"	0.375"	1530	50	Class A	~1.16
Fresh Water	10-3/4"	13-1/2"	0.35"	2730	1000	Class A	~1.16
Coal	7-5/8"	9-7/8"	0.328"	9410	1500	Class A	~1.16
Intermediate							
Production	5"	6-3/4"	0.362"	15,840	12,000	Class G/H	~1.16
Tubing	2-3/8"	4.778"	0.19"	11,200			
Liners							

PACKERS

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

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

JCB  
3/28/22

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 48.38 acres

22) Area to be disturbed for well pad only, less access road (acres): 8.32 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:

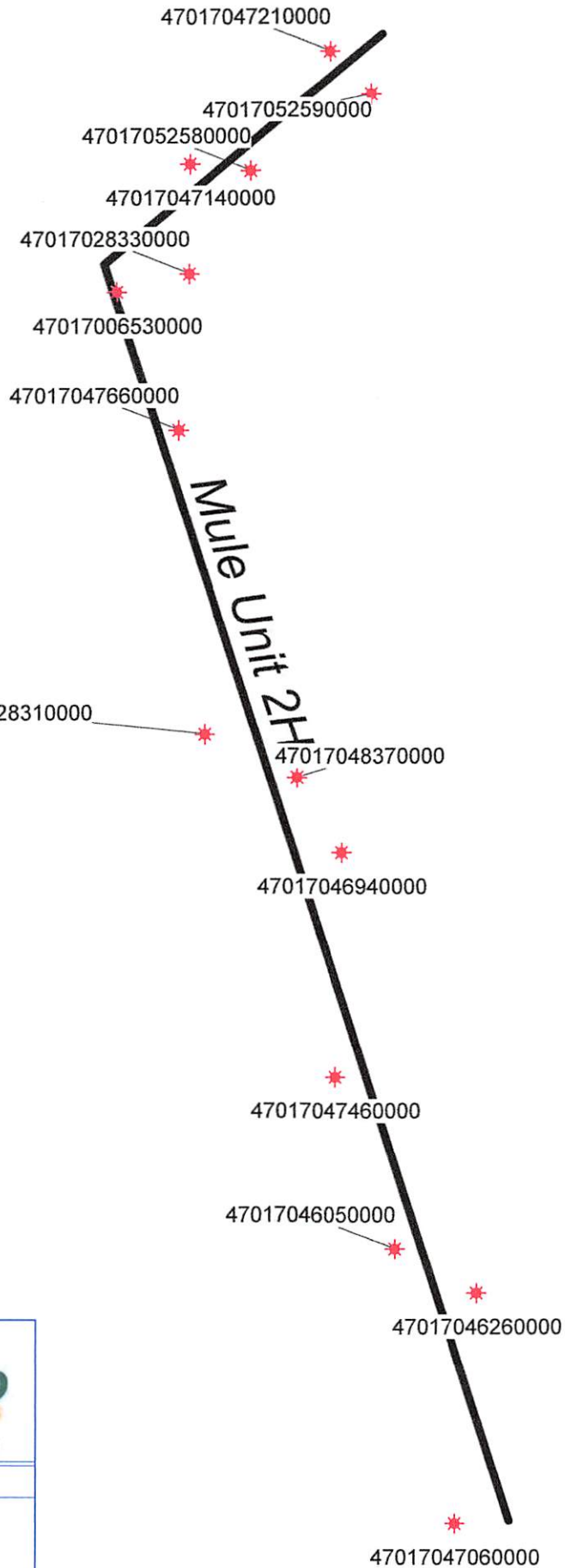
Conductor: blowhole clean with air, run casing, 10 bbls fresh water.

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.



Antero Resources Corporation

Mule Unit 2H - AOR



WELL SYMBOLS  
Gas Well

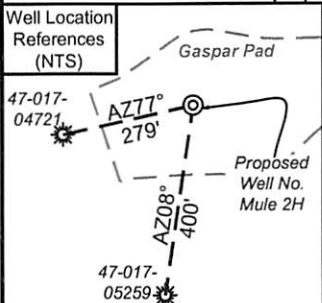
February 22, 2022

UWI (APINum)	Well Name	Well Number	Operator	Historical Operator	TD	Perforated Interval (shallowest, deepest)	Perforated Formation(s)	Producible Formation(s) not perf'd
47017052590000	J SMITH	5	ANTERO RESOURCES CORPORATION	SPENCER ENTERPRISES	2,966	2078 - 2766	Greenbrier, Big Injun, Gordon	Warren, Speechly, Balltown, Riley, Benson
47017047210000	FARR	2	KEY OIL CO	KEY OIL CO	5,630	3524 - 5481	Warren, Speechley, Balltown, Riley, Benson, Alexander	Gordon, Berea
47017052580000	J SMITH	4	ANTERO RESOURCES CORPORATION	SPENCER ENTERPRISES	2,818	1992 - 2712	Greenbrier, Big Injun, Gordon	Alexander, Berea
47017047140000	FARR	1	KEY OIL CO	KEY OIL CO	5,497	3439 - 5391	Warren, Speechley, Balltown, Riley, Benson, Alexander	Gordon, Berea
47017028330000	J SMITH	1	SPENCER ENTERPRISES	SPENCER HUGH K ET AL	2,500		Unknown	Unknown
47017006530000	SUMMERS & SMITH	1	OLE COLONY DEV	OLE COLONY DEV	1,973		Salt Sands, Big Injun	Alexander, Gordon, Berea
47017047660000	SMITH J	2	SPENCER ENTERPRISES	SPENCER ENTERPRISES	3,000	2142 - 2860	Big Injun, Gordon	Berea
47017028310000	BARKER	1	SWISHER MICHAEL A	SPENCER HUGH K ET AL	2,500			
47017048370000	HAUGHT	3	KEY OIL CO	KEY OIL CO	2,817		Keener, Big Injun, Squaw, Gordon	Alexander, Berea
47017046940000	LONGACRE	2	KEY OIL CO	KEY OIL CO	5,336	3238 - 5199	Warren, Speechley, Balltown, Riley, Benson, Alexander	Gordon, Berea
47017047460000	WISE	1	KEY OIL CO	KEY OIL CO	2,454	1641 - 2351	Gordon	Alexander, Berea
47017046050000	MAXWELL/FARR	2	KEY OIL CO	KEY OIL CO	5,327	3280 - 5236	Speechley, Riley, Benson, Alexander	Gordon, Berea
47017046260000	MAXWELL/FARR	4	BERRY ENERGY INC	ALPHA GAS CORP	2,852	1912 - 2638	Big Injun, Gordon	Alexander, Berea
47017047060000	MAXWELL/FARR	6	BERRY ENERGY INC	ALPHA GAS CORP	2,764	1720 - 2528	Big Injun, Gordon	Alexander, Berea

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 MAR 15 2022  
 WV Department of  
 Environmental Protection

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

Sheet 1 of 2

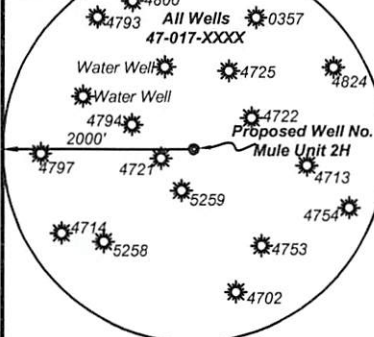


I, the undersigned, hereby certify that this plat is correct to the best of my knowledge and belief and shows all the information required by law and the rules issued and prescribed by the Department of Environmental Protection.

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



Note: 2 water well was 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.



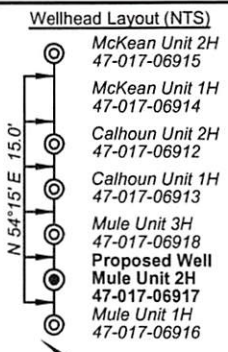
Legend

- Proposed gas well
- Monument, as noted
- Existing Well, as noted
- Digitized Well, as noted
- Creek or Drain
- Road
- Surface boundary (approx.)
- Interior surface tracts (approx.)

3,645' to Top Hole  
 2,778' to Bottom Hole  
 TOP HOLE LATITUDE 39 - 20 - 00  
 BTM HOLE LATITUDE 39 - 17 - 30

**Notes**  
 West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.  
 Well No. Mule Unit 2H Top Hole coordinates are  
 N: 299,182.79' Latitude: 39°18'52.34"  
 E: 1,642,691.20' Longitude: 80°45'46.40"  
 Bottom Hole coordinates are  
 N: 288,879.48' Latitude: 39°17'10.61"  
 E: 1,643,417.15' Longitude: 80°45'35.33"  
 UTM Zone 17, NAD 1983  
 Top Hole Coordinates Bottom Hole Coordinates  
 N: 4,351,718.279m N: 4,348,583.053m  
 E: 520,455.542m E: 520,729.057m  
 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. Mule Unit 2H UTM Zone 17, NAD 1927  
 Top Hole Coordinates  
 N: 14,276,547.41'  
 E: 1,707,480.61'  
 Point of Entry Coordinates  
 N: 14,274,649.37'  
 E: 1,705,663.59'  
 Bottom Hole Coordinates  
 N: 14,266,261.26'  
 E: 1,708,377.98'



Bearing	Dist.
L1 N 89°27' E	1,531.0'
L2 S 63°23' E	643.5'
L3 S 62°05' W	758.5'
L4 N 19°28' W	1,533.9'
L5 S 44°42' W	2,628.5'

FILE NO: 55-30-WU-14  
 DRAWING NO: Mule Unit 2H Well Plat  
 SCALE: 1" = 1500'  
 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: March 7 20 22  
 OPERATOR'S WELL NO. Mule Unit 2H  
 API WELL NO MUD  
 47 - 017 - 06917  
 STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
 (IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW  
 LOCATION: ELEVATION: Existing: 1,216' Proposed: 1,189' WATERSHED: Middle Island Creek HEADWATERS: Middle Island Creek QUADRANGLE: West Union  
 DISTRICT: West Union Antero COUNTY: Doddridge  
 SURFACE OWNER: Midstream, LLC Four Leaf Land Company; R.S. Maxwell & Clarence E. Sigley, Sr.; Mary Agnes Phillips, et al; Winston Love Family Trust; Frank L. Butler; Key Oil Company & Frank L. Butler; WV State Rail Authority; Michael A. Swisher, et ux; Ernest Spence Shannon, et al ACREAGE: 45.8  
 ROYALTY OWNER: William A. Farr; James Lincoln Smith; Richard Lowther, et ux; WVDNR LEASE NO: ACREAGE: 137; 7.2; 17; 1.95  
 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: 7,600' TVD 19,700' MD

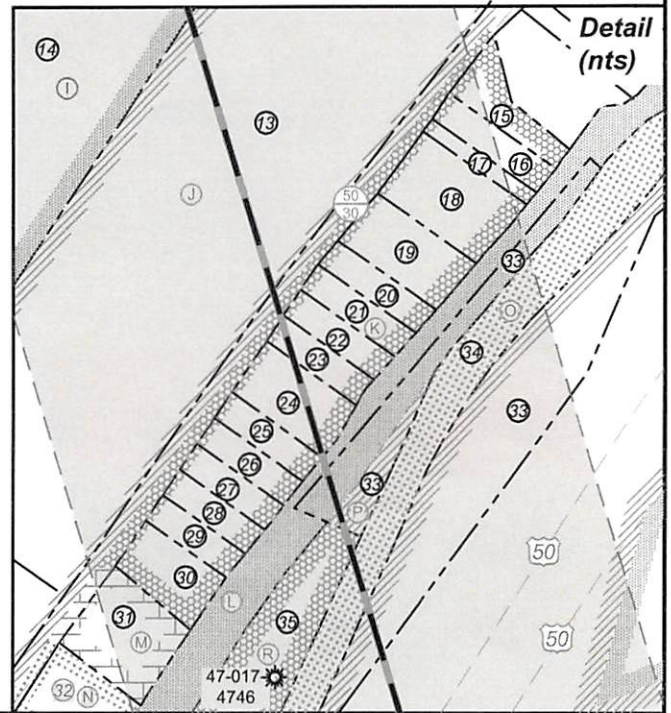
WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Dianna Stamper - CT Corporation System  
 ADDRESS: 1615 Wynkoop Street ADDRESS: 5400 D Big Tyler Road  
 Denver, CO 80202 Charleston, WV 25313





ID	TM/Par	Owner	Bk/Pg	Acres
1	7-18.1	Antero Midstream, LLC	346/612	45.8
2	7-18	Antero Midstream, LLC	387/708	116.54
3	7-29	Sharon A. Gaspar	W113/242	182.67
4	7-18.2	Brian D. and Patricia Sue Reed	392/472	1.34
5	7-18.3	Bryan & Ronda Ash	216/663	15.00
6	11-87	Amy B. & Howard Spurlock II	244/522	8.94
7	11-87.1	Amy B. & Howard Spurlock II	243/113	5.94
8	11-9	Shelia Jane Lynch Buck, et al	W8/35	56.25
9	11-7.1	Michael A. & Vivian L. Swisher	219/617	3.50
10	11-14	Rhoda Rene Fitzsimmons, et al	272/89	5.12
11	11-93	Rhoda Rene Fitzsimmons, et al	272/89	0.11
12	11-16	Rhoda Rene Fitzsimmons, et al	272/89	19.72
13	11-24	Clarence Ray Bonnell, et al	105/317	15.76
14	11-23	Justin E. & Melissa Ann Holtz	342/354	23.77
15	11-66	Monkey Row Trailer Park LLC	288/26	0.25
16	11-65.1	Monkey Row Trailer Park LLC	288/26	0.40
17	11-65	Monkey Row Trailer Park LLC	288/26	0.15
18	11-64	Monkey Row Trailer Park LLC	288/26	0.96
19	11-63	Monkey Row Trailer Park LLC	288/26	0.73
20	11-62	Monkey Row Trailer Park LLC	288/26	0.35
21	11-61	W. Randall Lynch & Dixie Craig	315/477	0.34
22	11-60	Ralph & Pamela Cutright	376/34	0.33
23	11-59	Ralph & Pamela Cutright	376/34	0.33
24	11-58	Janet M. Esposito, et al	W37/536	0.62
25	11-57	Patrick H. Bonnell	248/582	0.32
26	11-56	Robert O. Bonnell	229/184	0.30
27	11-55	Robert O. Bonnell	229/184	0.30
28	11-54	Mansfield Lee Leeson	282/339	0.29
29	11-53	Shelly G. Bonnell	275/367	0.29
30	11-52	Daniel L. Friend	274/34	0.51
31	11-51	Cheryl Lynn Hall	W89/488	1.00
32	11-50	Earl R. Daugherty	304/415	1.00
33	11-25	J. Charles & George J. Buff III, et al	377/517	6.02
34	11-95	WV Railroad Maintenance Authority	216/166	31.84
35	11-69.1	Franklin L. Butler	255/666	1.00
36	11-68	Earl R. Daugherty	286/205	5.00
37	11-25.1	J. Charles & George J. Buff III, et al	377/517	16.72
38	11-70	Four Leaf Land Co.	270/147	0.24
39	12-63	Karen M. Ireland Family L.P.	235/3	31.50
40	11-80	Karen M. Ireland Family L.P.	235/3	105.35
41	12-71.1	Franklin L. Butler & Key Oil Co.	256/324	81.91

Leases	
A	William A. Farr
B	William Ashburn Heirs
C	James Lincoln Smith
D	Roy E. Smith, et ux
E	Richard Lowther, et ux
F	Michael A. Swisher, et ux
G	Ernest Spence Shannon, et al
H	L. Donald Cinci, III
I	Ernest Spence Shannon, et al
J	Frank L. Butler
K	Winston Love Family Trust
L	WVDNR
M	Cherly Lynn Hall
N	James P. Pierce
O	WV State Rail Authority
P	Mary Agnes Phillips, et al
Q	WV DOT, Division of Highways
R	Key Oil Company & Frank L. Butler
S	AMP Fund III, LP
T	Four Leaf Land Company
U	R.S. Maxwell & Clarence E. Sigley Sr.



FILE NO: 55-30-WU-14  
 DRAWING NO: Mule Unit 2H Well Plat  
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 DISTRICT: West Union Antero COUNTY: Doddridge  
 SURFACE OWNER: Midstream, LLC Four Leaf Land Company; R.S. Maxwell & Clarence E. Sigley, Sr.; Mary Agnes Phillips, et al; 2.375; 54.48; 92;  
 WINSTON LOVE FAMILY TRUST; FRANK L. BUTLER; KEY OIL COMPANY & FRANK L. BUTLER; 45.8; 180; 56.25;  
 WV STATE RAIL AUTHORITY; MICHAEL A. SWISHER, ET UX; ERNEST SPENCE SHANNON, ET AL; 301.19; 11; 141;  
 ROYALTY OWNER: William A. Farr; James Lincoln Smith; Richard Lowther, et ux; WVDNR LEASE NO: ACREAGE: 137; 7.2; 17; 1.95

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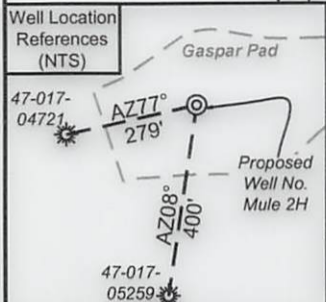
Sheet 1 of 2

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2,778' to Bottom Hole

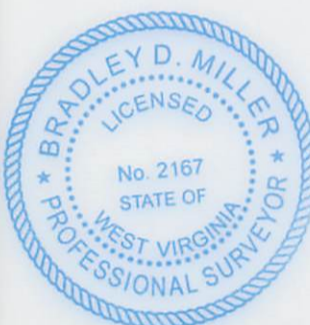
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 BTM HOLE LATITUDE 39 - 17 - 30

LONGITUDE 80 - 45 - 00  
 1,962' to Bottom Hole  
 6,846' to Top Hole

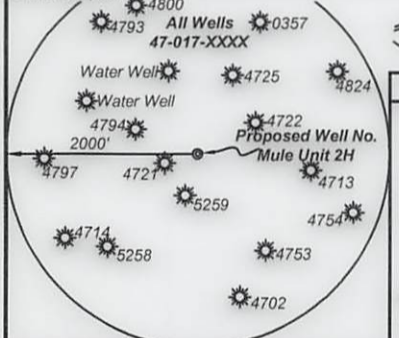


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*Bradley D. Miller*  
 Bradley D. Miller, P.S. 2167



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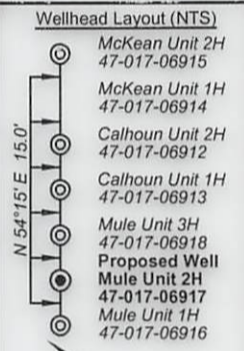


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See Detail (Page 2)

	Bearing	Dist.
L1	N 89°27' E	1,531.0'
L2	S 63°23' E	643.5'
L3	S 62°05' W	758.5'
L4	N 19°28' W	1,533.9'
L5	S 44°42' W	2,628.5'

FILE NO: 55-30-WU-14  
 DRAWING NO: Mule Unit 2H Well Plat  
 SCALE: 1" = 1500'  
 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: March 7 20 22  
 OPERATOR'S WELL NO. Mule Unit 2H  
 API WELL NO MOD  
 47 - 017 - 06917  
 STATE COUNTY PERMIT

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

LOCATION: ELEVATION: Existing: 1,216' Proposed: 1,189' WATERSHED: Middle Island Creek QUADRANGLE: West Union  
 DISTRICT: West Union Antero COUNTY: Doddridge  
 SURFACE OWNER: Midstream, LLC Four Leaf Land Company; R.S. Maxwell & Clarence E. Sigley, Sr.; Mary Agnes Phillips, et al; 2.375; 54.48; 92;  
 WINSTON LOVE FAMILY TRUST; FRANK L. BUTLER; KEY OIL COMPANY & FRANK L. BUTLER; 45.8; 45.8; 180; 56.25;  
 WV STATE RAIL AUTHORITY; MICHAEL A. SWISHER, et ux; ERNEST SPENCE SHANNON, et al 301.19; 11; 141;  
 ROYALTY OWNER: William A. Farr; James Lincoln Smith; Richard Lowther, et ux; WVDNR LEASE NO: ACREAGE: 137; 7.2; 17; 1.95

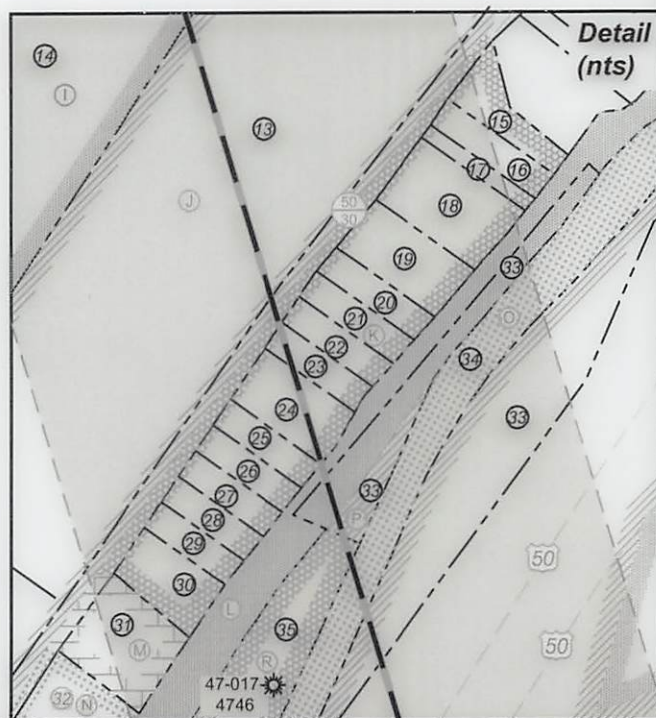
PROPOSED WORK:  DRILL  CONVERT  DRILL DEEPER  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  
 PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY) BHL MOD  
 PLUG AND ABANDON  CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 19,700' MD 7,600' TVD

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



ID	TM/Par	Owner	Bk/Pg	Acres
1	7-18.1	Antero Midstream, LLC	346/612	45.8
2	7-18	Antero Midstream, LLC	387/708	116.54
3	7-29	Sharon A. Gaspar	W113/242	182.67
4	7-18.2	Brian D. and Patricia Sue Reed	392/472	1.34
5	7-18.3	Bryan & Ronda Ash	216/663	15.00
6	11-87	Amy B. & Howard Spurlock II	244/522	8.94
7	11-87.1	Amy B. & Howard Spurlock II	243/113	5.94
8	11-9	Shelia Jane Lynch Buck, et al	W8/35	56.25
9	11-7.1	Michael A. & Vivian L. Swisher	219/617	3.50
10	11-14	Rhoda Rene Fitzsimmons, et al	272/89	5.12
11	11-93	Rhoda Rene Fitzsimmons, et al	272/89	0.11
12	11-16	Rhoda Rene Fitzsimmons, et al	272/89	19.72
13	11-24	Clarence Ray Bonnell, et al	105/317	15.76
14	11-23	Justin E. & Melissa Ann Holtz	342/354	23.77
15	11-66	Monkey Row Trailer Park LLC	288/26	0.25
16	11-65.1	Monkey Row Trailer Park LLC	288/26	0.40
17	11-65	Monkey Row Trailer Park LLC	288/26	0.15
18	11-64	Monkey Row Trailer Park LLC	288/26	0.96
19	11-63	Monkey Row Trailer Park LLC	288/26	0.73
20	11-62	Monkey Row Trailer Park LLC	288/26	0.35
21	11-61	W. Randall Lynch & Dixie Craig	315/477	0.34
22	11-60	Ralph & Pamela Cutright	376/34	0.33
23	11-59	Ralph & Pamela Cutright	376/34	0.33
24	11-58	Janet M. Esposito, et al	W37/536	0.62
25	11-57	Patrick H. Bonnell	248/582	0.32
26	11-56	Robert O. Bonnell	229/184	0.30
27	11-55	Robert O. Bonnell	229/184	0.30
28	11-54	Mansfield Lee Leeson	282/339	0.29
29	11-53	Shelly G. Bonnell	275/367	0.29
30	11-52	Daniel L. Friend	274/34	0.51
31	11-51	Cheryl Lynn Hall	W89/488	1.00
32	11-50	Earl R. Daugherty	304/415	1.00
33	11-25	J. Charles & George J. Buff III, et al	377/517	6.02
34	11-95	WV Railroad Maintenance Authority	216/166	31.84
35	11-69.1	Franklin L. Butler	255/666	1.00
36	11-68	Earl R. Daugherty	286/205	5.00
37	11-25.1	J. Charles & George J. Buff III, et al	377/517	16.72
38	11-70	Four Leaf Land Co.	270/147	0.24
39	12-63	Karen M. Ireland Family L.P.	235/3	31.50
40	11-80	Karen M. Ireland Family L.P.	235/3	105.35
41	12-71.1	Franklin L. Butler & Key Oil Co.	256/324	81.91

Leases	
A	William A. Farr
B	William Ashburn Heirs
C	James Lincoln Smith
D	Roy E. Smith, et ux
E	Richard Lowther, et ux
F	Michael A. Swisher, et ux
G	Ernest Spence Shannon, et al
H	L. Donald Cinci, III
I	Ernest Spence Shannon, et al
J	Frank L. Butler
K	Winston Love Family Trust
L	WVDNR
M	Cheryl Lynn Hall
N	James P. Pierce
O	WV State Rail Authority
P	Mary Agnes Phillips, et al
Q	WV DOT, Division of Highways
R	Key Oil Company & Frank L. Butler
S	AMP Fund III, LP
T	Four Leaf Land Company
U	R.S. Maxwell & Clarence E. Sigley Sr.



FILE NO: 55-30-WU-14  
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**OIL AND GAS DIVISION**

DATE: March 7 2022  
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 API WELL NO MUD  
47 - 017 - 06917  
 STATE COUNTY PERMIT

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 DISTRICT: West Union Antero COUNTY: Doddridge  
 SURFACE OWNER: Midstream, LLC Four Leaf Land Company; R.S. Maxwell & Clarence E. Sigley, Sr.; Mary Agnes Phillips, et al; COUNTY: Doddridge 2,375; 54.48; 92;  
 ROYALTY OWNER: William A. Farr; James Lincoln Smith; Richard Lowther, et ux; WVDNR Winston Love Family Trust; Frank L. Butler; Key Oil Company & Frank L. Butler; ACREAGE: 45.8 45.8; 180; 56.25;  
 PROPOSED WORK:  DRILL  CONVERT  DRILL DEEPER  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION 301.19; 11; 141;  
 PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY) BHL MOD ACRES: 137; 7.2; 17; 1.95  
 PLUG AND ABANDON  CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 7,600' TVD  
19,700' 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

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>A</b> <u>William A. Farr Lease</u>			
William A. Farr	Carolyn E. Farr Trust	1/8	0277/0644
Carolyn E. Farr Trust	Antero Resources Appalachian Corporation	Assignment	0281/0310
Antero Resources Appalachian Corporation	Antero Resources Corporation	<b>Name Change</b>	<b>0046/0523</b>
<b>C</b> <u>James Lincoln Smith Lease</u>			
James Lincoln Smith	Duncan Sartain	1/8	0071/0080
Duncan Sartain	L.E. Scherck	Assignment	0072/0377
L.E. Scherck	Roscoe B.G. Cowper & B.T. Cowper	Assignment	0071/0183
Roscoe B.G. Cowper & B.T. Cowper	Lawrence H. Aberegg	Assignment	0098/0233
Lawrence H. Aberegg	Hugh K. Spencer	Assignment	0098/0235
Hugh K. Spencer	Ronald B. Spencer and Rhonda S. Rossetti, as co-executors of the estate of Hugh K. Spencer	Will	0033/0068
Ronald B. Spencer and Rhonda S. Rossetti, as co-executors of the estate of Hugh K. Spencer	Ronald B. Spencer and Rhonda S. Rossetti, as co-trustees of the Hugh K. Spencer Martial Trust B	Assignment	0199/0282
Ronald B. Spencer and Rhonda S. Rossetti, as co-trustees of the Hugh K. Spencer Martial Trust B	Spencer Enterprises, LLC	Assignment	0199/0534
Spencer Enterprises, LLC	Antero Resources Appalachian Corporation	Assignment	0264/0099
Antero Resources Appalachian Corporation	Antero Resources Corporation	<b>Name Change</b>	<b>0046/0523</b>
<b>A</b> <u>William A. Farr Lease</u>			
William A. Farr	Carolyn E. Farr Trust	1/8	0277/0644
Carolyn E. Farr Trust	Antero Resources Appalachian Corporation	Assignment	0281/0310
Antero Resources Appalachian Corporation	Antero Resources Corporation	<b>Name Change</b>	<b>0046/0523</b>
<b>E</b> <u>Richard Lowther et ux Lease</u>			
Richard Lowther et ux	Beckler Energy Inc	1/8	141/533
Beckler Energy Inc	Spencer Enterprises	Assignment	141/586
Spencer Enterprises	Antero Resources Appalachian Corporation	Assignment	264/99
Antero Resources Appalachian Corporation	Antero Resources Corporation	<b>Name Change</b>	<b>46/523</b>
<b>F</b> <u>Michael A Swisher et ux Lease</u>			
Michael A Swisher et ux	Antero Resources Corporation	1/8+	499/712
<b>B</b> <u>Ernest Spence Shannon et al Lease</u>			
Ernest Spence Shannon et al	Duncan Sartain	1/8	73/285
Duncan Sartain	D Lee Jones	Assignment	74/467
D Lee Jones	Bayard Thurman Cowper III and Roscoe B G Cowper	Assignment	98/11
Bayard Thurman Cowper III and Roscoe B G Cowper	Lawrence H Abregg	Assignment	98/120
Lawrence H Abregg	Hugh J Spencer	Assignment	98/235
Hugh K Spencer	Ronald B Spencer and Rhonda S Rossetti	Will Book	33/68
Ronald B Spencer and Rhonda S Rossetti	Spencer Enterprises LLC	Assignment	251/529
Spencer Enterprises LLC	Antero Resources Appalachian Corporation	Assignment	264/99
Antero Resources Appalachian Corporation	Antero Resources Corporation	<b>Merger</b>	<b>46/523</b>

RECEIVED  
Office of Oil and Gas  
MAR 15 2022  
WV Department of  
Environmental Protection

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	Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
J	<u>Frank L Butler Lease</u> Frank L Butler Key Oil Company Antero Resources Appalachian Corporation	Key Oil Company Antero Resources Appalachian Corporation Antero Resources Corporation	1/8 Assignment Merger	193/150 276/526 46/523
K	<u>Winston Love Family Trust Lease</u> Winston Love Family Trust	Antero Resources Corporation	1/8+	439/700
L	<u>WVDNR Lease</u> WVDNR	Antero Resources Corporation	1/8+	483/188
P	<u>Mary Agnes Phillips et al Lease</u> Mary Agnes Phillips et al Key Oil Company Antero Resources Appalachian Corporation	Key Oil Company Antero Resources Appalachian Corporation Antero Resources Corporation	1/8 Assignment Name Change	188/61 276/526 46/523
R	<u>Key Oil Company &amp; Frank L Butler Lease</u> Key Oil Company & Frank L Butler Key Oil Company Antero Resources Appalachian Corporation	Key Oil Company Antero Resources Appalachian Corporation Antero Resources Corporation	1/8 Assignment Merger	195/124 276/526 46/523
O	<u>WV State Rail Authority Lease</u> WV State Rail Authority Antero Resources Appalachian Corporation	Antero Resources Appalachian Corporation Antero Resources Corporation	1/8+ Name Change	253/409 46/523
T	<u>Four Leaf Land Company Lease</u> Four Leaf Land Company	Antero Resources Corporation	1/8+	500/489

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MAR 15 2022  
WV Department of  
Environmental Protection

\*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)**

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Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
<u>R.S. Maxwell and Clarence E. Sigley Sr. Lease</u>				
	R.S. Maxwell and Clarence E. Sigley Sr Trustee for Carolyn E. Farr Trust	Key Oil Company	1/8	0193/0020
	Key Oil Company	Antero Resources Appalachian Corporation	Assignment	0276/0526
	Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	0046/0523

**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 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 VP of Operations

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MAR 15 2022  
WV Department of  
Environmental Protection



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

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**Modification Horizontal H6A Well Work Permit API: 47-017-06917)**

1 message

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

Tue, Mar 29, 2022 at 10:16 AM

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

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


**47-017-06917 - MULE UNIT 2H**

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](mailto:Wade.A.Stansberry@wv.gov)

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