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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)

Wednesday, April 1, 2020  
PERMIT MODIFICATION APPROVAL  
Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION  
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit Modification Approval for KRAMER 1H  
47-095-02673-00-00

Modified Lateral to 22,400' with no additional wells within 500'

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

A handwritten signature in blue ink, appearing to read 'James A. Martin', is written over the printed name and title.

Operator's Well Number: KRAMER 1H  
Farm Name: MICHAEL J. & MELINDA R. HOQUE  
U.S. WELL NUMBER: 47-095-02673-00-00  
Horizontal 6A New Drill  
Date Modification Issued: April 1, 2020

Promoting a healthy environment.

WW-6B  
(04/15)

API NO. 47-095 - 02673  
OPERATOR WELL NO. Kramer Unit 1H  
Well Pad Name: Hogue 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 Middlebourne 7.5'  
Operator ID County District Quadrangle

2) Operator's Well Number: Kramer Unit 1H Well Pad Name: Hogue Pad

3) Farm Name/Surface Owner: Michael J. & Melinda R. Hogue Public Road Access: Klondike Acres Road

4) Elevation, current ground: 1033' Elevation, proposed post-construction: ~1014.5

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

(b) If Gas Shallow  Deep   
Horizontal

*JCB*  
*3/18/2020*

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Marcellus Shale: 6900' TVD, Anticipated Thickness- 55 feet, Associated Pressure- 2850#

8) Proposed Total Vertical Depth: 6900' TVD

9) Formation at Total Vertical Depth: Marcellus

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10) Proposed Total Measured Depth: 22400' MD

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11) Proposed Horizontal Leg Length: 11937'

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Environmental Protection

12) Approximate Fresh Water Strata Depths: 456'

13) Method to Determine Fresh Water Depths: 47-095-00704

14) Approximate Saltwater Depths: 1581'

15) Approximate Coal Seam Depths: 740'

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 - 02673

OPERATOR WELL NO. Kramer Unit 1H

Well Pad Name: Hogue 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	16"	New	H-40	94#	80	80	CTS, 63 Cu. Ft.
Fresh Water	10 3/4"	New	J-55	40.5#	506 *see # 19	506 *see # 19	CTS, 368 Cu. Ft.
Coal	7 5/8"	New	K-55	26.4#	2500	2500	CTS, 698 Cu. Ft.
Intermediate							
Production	5"	New	P-110	18#	22400	22400	5752 Cu. Ft
Tubing	2-3/8"	New	N-80	4.7#			
Liners							

*JOB*  
*13/18/2020*

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	10"	20"	0.438"	2630	50	Class A	~1.2
Fresh Water	10 3/4"	13-1/2"	0.35"	2730	1000	Class A	~1.2
Coal	7-5/8"	9 7/8"	0.328"	4140	1500	Class A	~1.2
Intermediate							
Production	5"	6 3/4"	0.362"	15840	2500	Class H	~1.26
Tubing	2-3/8"	4.778"	0.19"	11,200			
Liners							

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**PACKERS**

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



WW-6B  
(10/14)

API NO. 47-095 - 02673

OPERATOR WELL NO. Kramer Unit 1H

Well Pad Name: Hogue Pad

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

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

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

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

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

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

*Job*  
*3/13/2020*

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 28.10 acres

22) Area to be disturbed for well pad only, less access road (acres): 12.79 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.

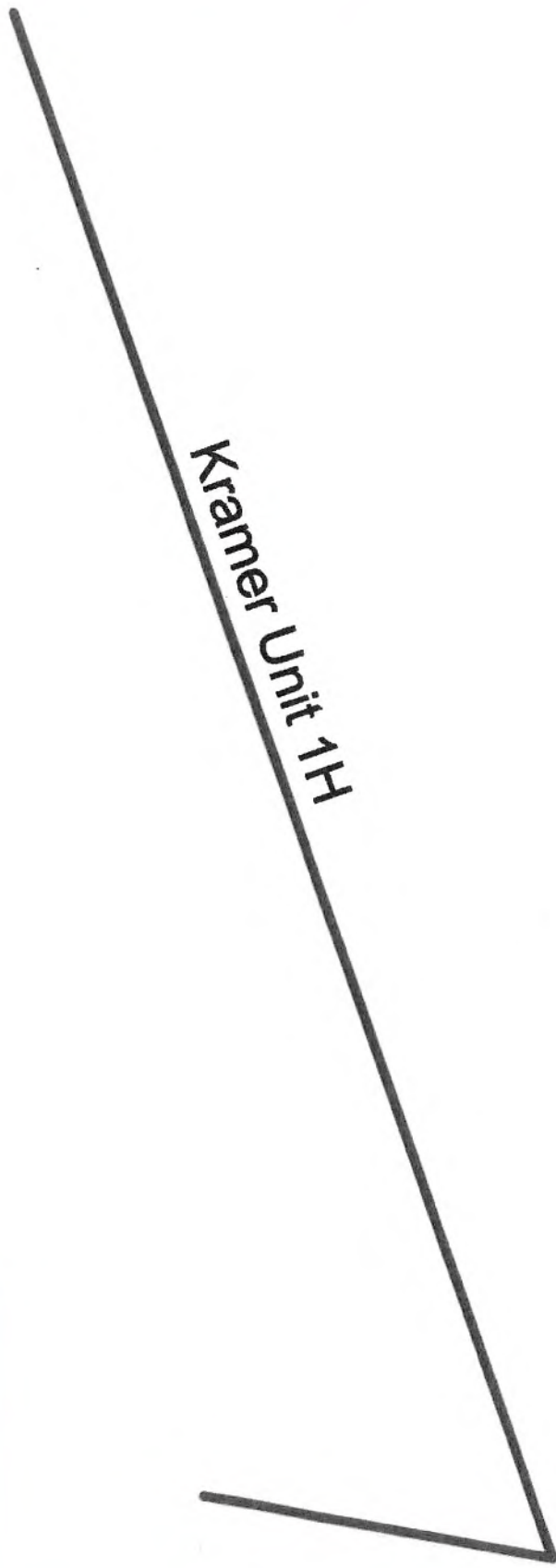
Surface: blowhole clean with air, trip to conductor shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate pipe capacity + 40 bbls fresh water followed by 25 bbls bentonite mud, 10 bbls fresh water spacer.

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 # 47-095-02673



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Antero Resources Corporation

Kramer Unit 1H - AOR



REMARKS  
No Wells of Interest

October 30, 2019

908  
3/19/2020



WW-6A1

Operator's Well Number Kramer Unit 1H

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

MAR 24 2020

WV Department of  
Environmental Protection

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>Michael J. &amp; Melinda R. Hogue Lease (TM 20 PCL 108)</b>			
Michael J. & Melinda R. Hogue	Statoil USA Onshore Properties Inc.	1/8	0449/0283
Statoil USA Onshore Properties Inc.	EQT Production Company	Assignment	0539/0239
EQT Production Company	Antero Resources Corporation	Assignment	0663/0001
<b>James F. Doan et ux Lease (TM 26 PCL 46.12)</b>			
James F. Doan et ux	Chesapeake Appalachia	1/8	0376/0345
Chesapeake Appalachia	SWN Production Company LLC	Assignment	0465/0463
SWN Production Company	Antero Exchange Properties	Assignment	0544/0242
Antero Exchange Properties	Antero Resources Corporation	Merger	0552/0315
<b>Ridgetop Capital LP Lease (TM 20 PCL 110)</b>			
Ridgetop Capital LP	Antero Resources Corporation	1/8+	0634/0345
<b>James F. Doan et ux Lease (TM 26 PCL 46.13)</b>			
James F. Doan et ux	Chesapeake Appalachia	1/8	0376/0345
Chesapeake Appalachia	SWN Production Company LLC	Assignment	0465/0463
SWN Production Company	Antero Exchange Properties	Assignment	0544/0242
Antero Exchange Properties	Antero Resources Corporation	Merger	0552/0315
<b>Ridgetop Capital LP Lease (TM 26 PCL 46)</b>			
Ridgetop Capital LP	Antero Resources Corporation	1/8+	0634/0345
<b>James F. Doan et ux Lease (TM 26 PCL 46.10)</b>			
James F. Doan et ux	Chesapeake Appalachia	1/8	0376/0345
Chesapeake Appalachia	SWN Production Company LLC	Assignment	0465/0463
SWN Production Company LLC	Antero Exchange Properties	Assignment	0544/0242
Antero Exchange Properties	Antero Resources Corporation	Merger	0552/0315
<b>Ridgetop Capital LP Lease (TM 20 PCL 110)</b>			
Ridgetop Capital LP	Antero Resources Corporation	1/8+	0634/0345
<b>Michael J. &amp; Melinda R. Hogue Lease (TM 20 PCL 108)</b>			
Michael J. & Melinda R. Hogue	Statoil USA Onshore Properties Inc.	1/8	0449/0283
Statoil USA Onshore Properties Inc.	EQT Production Company	Assignment	0539/0239
EQT Production Company	Antero Resources Corporation	Assignment	0663/0001
<b>WV Division of Natural Resources Lease</b>			
WV Division of Natural Resources	Antero Resources Corporation	1/8+	0648/0563

\*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.

\*\*CONTINUED ON NEXT PAGE\*\*

MAR 24 2020

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)

WV Department of  
Environmental Protection

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Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<b>Barbara K. Davis Lease</b> Barbara K. Davis	Antero Resources Corporation	1/8+	0566/0325
<b>John T. Burr et ux Lease</b> John T. Burr et ux	Antero Resources Corporation	1/8+	0773/0775
<b>Perry L. Weekley et ux Lease</b> Perry L. Weekley et ux	Antero Resources Corporation	1/8+	0632/0479
<b>Nina Naomi Wise Lease</b> Nina Naomi Wise	Antero Resources Corporation	1/8+	0645/0467
<b>Jerry Todd Williams Lease</b> Jerry Todd Williams	Antero Resources Corporation	1/8+	0637/0655
<b>Rosalee J. Forrester Lease (TM 20 PCL 59.1)</b> Rosalee J. Forrester	Antero Resources Corporation	1/8+	0631/0494
<b>Rosalee J. Forrester Lease (TM 20 PCL 60)</b> Rosalee J. Forrester	Antero Resources Corporation	1/8+	0631/0494
<b>Robert J. Kocher Lease</b> Robert J. Kocher	Antero Resources Corporation	1/8+	0632/0750
<b>William M. Baker et ux Lease</b> William M. Baker et ux	Antero Resources Corporation	1/8+	0643/0141
<b>Brian D. Carpenter et ux Lease</b> Brian D. Carpenter et ux	Antero Resources Corporation	1/8+	0563/0459
<b>Richard A. Fonner et ux Lease</b> Richard A. Fonner et ux	Antero Resources Corporation	1/8+	0452/0305
<b>Jerry R. Brown Lease</b> Jerry R. Brown	Antero Resources Corporation	1/8+	0637/0770
<b>Grace M. Stackpole Lease</b> Grace M. Stackpole	Antero Resources Corporation	1/8+	0643/0126
<b>MAP2012-OK Lease</b> MAP2012-OK	Antero Resources Corporation	1/8+	0591/0267
<b>Middlebourne Cemetery Association Lease</b> Middlebourne Cemetery Association	Antero Resources Corporation	1/8+	0555/0634



Operator's Well Number Kramer Unit 1H

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

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Environmental Protection

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Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<b>Boyd M. Parr et ux Lease</b>			
Boyd M. Parr et ux	Antero Resources Appalachian Corporation	1/8+	0417/0702
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	0557/0430
<b>REOP LLC Lease</b>			
REOP LLC	Antero Resources Corporation	1/8+	0594/0350



MAD

WW-6A1  
(5/13)

Operator's Well No. Kramer Unit 1H

**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
Boyd M. Parr et ux Lease	Boyd M. Parr et ux	Antero Resources Appalachian Corporation	1/8+	0417/0702
	Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	0557/0430

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Office of Oil and Gas

MAR 24 2020

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.

**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: VP of Land



8,135' to Bottom Hole

6,650' to Top Hole

TOP HOLE LATITUDE 39 - 30 - 00  
BTM HOLE LATITUDE 39 - 32 - 30

LONGITUDE 80 - 52 - 30

10,234' to Top Hole

14,453' to Bottom Hole

Antero Resources  
Well No. Kramer Unit 1H  
BHL MOD  
Antero Resources Corporation



See Detail 2 Page 2

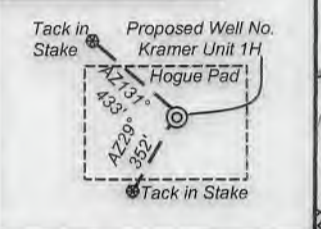
Kramer Unit 1H Bottom Hole

**Notes:**  
West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.  
Well No. Kramer Unit 1H Top Hole coordinates are  
N: 356,955.94' Latitude: 39°28'17.84"  
E: 1,605,358.02' Longitude: 80°53'52.79"  
Bottom Hole coordinates are  
N: 367,911.71' Latitude: 39°30'05.93"  
E: 1,604,105.05' Longitude: 80°54'10.95"  
UTM Zone 17, NAD 1983  
Top Hole Coordinates Bottom Hole Coordinates  
N: 4,369,128.939m N: 4,372,460.279m  
E: 508,788.207m E: 508,350.768m  
Plat orientation and corner and well references are based upon the grid north meridian.  
Well location references are based upon the magnetic meridian.

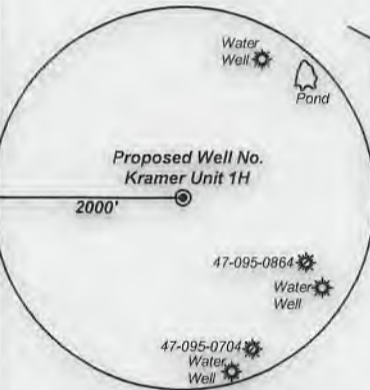
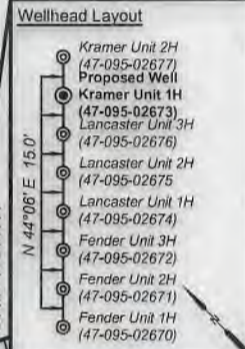
**Notes:**  
Well No. Kramer Unit 1H  
UTM Zone 17, NAD 1927  
Top Hole Coordinates  
N: 14,333,669.76'  
E: 1,669,201.87'  
Point of Entry Coordinates  
N: 14,333,325.35'  
E: 1,671,677.01'  
Bottom Hole Coordinates  
N: 14,344,599.34'  
E: 1,667,766.69'

- Legend**
- ⊙ Proposed gas well
  - ⊙ Monument, as noted
  - ⊙ Existing Well, as noted
  - ⊙ Existing Well, as noted
  - Creek or Drain
  - Existing Road
  - Surface boundary (approx.)
  - Interior surface tracts (approx.)
  - Corporation Line

**Well Location References**



Bearing	Dist.
L1 S 49°48' E	1,404.1'
L2 S 28°29' E	1,520.4'
L3 N 71°13' W	887.9'
L4 N 06°38' W	1,473.5'
L5 S 81°07' E	2,499.8'



Note: 3 water wells and 1 pond 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.



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

FILE NO: 15-54-E-19  
DRAWING NO: Kramer Unit 1H 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

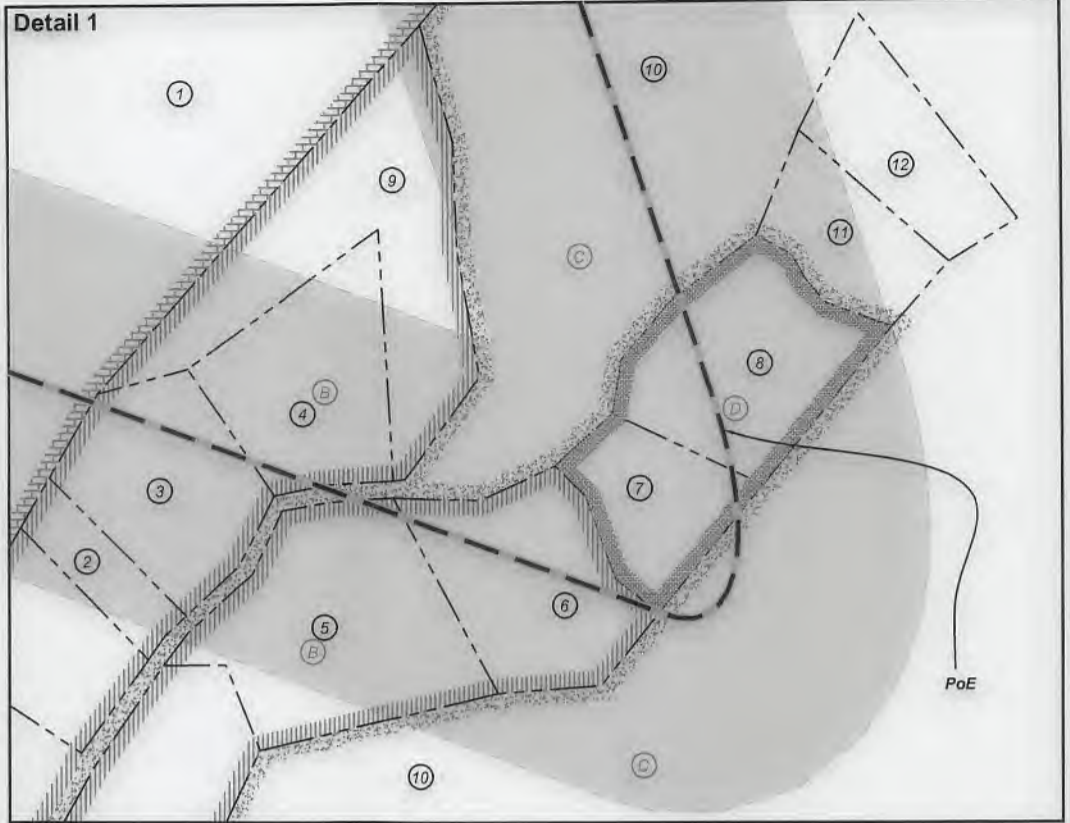
DATE: March 12 2019  
OPERATOR'S WELL NO. Kramer 1H  
API WELL NO  
47 - 095 - 02673  
STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
(IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW  
Proposed 1,014.5'  
LOCATION: ELEVATION: Existing 1,033' WATERSHED: Outlet Middle Island Creek QUADRANGLE: Middlebourne  
DISTRICT: Ellsworth COUNTY: Tyler  
SURFACE OWNER: Michael J. & Melinda R. Hogue ACREAGE: 192.0  
ROYALTY OWNER: Michael J. & Melinda R. Hogue; James F. Doan, et ux (2); Ridgetop Capital, LP; Robert J. Kocher, et ux; REOP, LLC; Jerry R. Brown, et ux; WV Dept. of Transportation, DOH; Boyd M. Parr, et ux; Charles R. Wince, et ux; Karen S. Hunt; Grace M. Stackpole; Ryan L. Walton, et ux; Map2012-OK; WV Division of Natural Resources; Middlebourne Cemetery Association; John T. Burr, et ux; Rosalee J. Forrester (3); Jerry Todd Williams; William M. Baker, et ux; Brian D. Carpenter, et ux; Barbara J. Davis (2); Perry L. Weekley, et ux; Nina Wise; Richard A. Fonner, et ux; Barbara K. Davis; LEASE NO: ACREAGE: 6.95064, 19.518, 13.35  
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: 22,400' MD 6,900' 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



Detail 1



Detail 2



FILE NO: 15-54-E-19  
 DRAWING NO: Kramer Unit 1H 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: March 12 2019  
 OPERATOR'S WELL NO. Kramer 1H  
 API WELL NO MDJ  
47 - 095 - 02673  
 STATE COUNTY PERMIT

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

LOCATION: ELEVATION: Existing 1,033' WATERSHED: Outlet Middle Island Creek QUADRANGLE: Middlebourne

DISTRICT: Ellsworth COUNTY: Tyler

SURFACE OWNER: Michael J. & Melinda R. Hogue ACREAGE: 192.0

ROYALTY OWNER: Michael J. & Melinda R. Hogue; James F. Doan, et ux (2); Ridgeloop Capital, LP; Robert J. Kocher; LEASE NO: \_\_\_\_\_ ACREAGE: \_\_\_\_\_

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: 22,400' MD

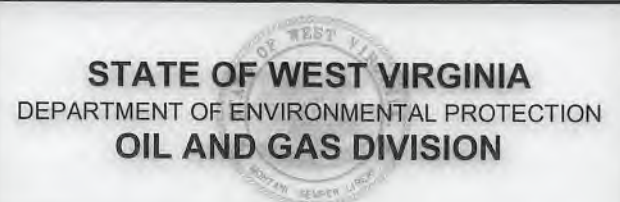
WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Dianna Stamper - CT Corporation System  
 ADDRESS: 1615 Wynkoop Street ADDRESS: 5400 D Big Tyler Road  
Denver, CO 80202 Charleston, WV 25313

93.225;  
 191.5; 81.33; 310.393;  
 9.178; 1.46; 2.235; 4;  
 4.34737; 1.97387; 0.40818;  
 1.50; 4.24; 102.33; 0.47;  
 0.40818; 100.45; 28.54;  
 0.45; 25.629; 0.13; 8.62;  
 0.91; 0.88; 5.73254;  
 6.95064; 19.518; 13.35





FILE NO: 15-54-E-19  
 DRAWING NO: Kramer Unit 1H Well Plat  
 SCALE: 1" = 2000'  
 MINIMUM DEGREE OF ACCURACY:  
Submeter  
 PROVEN SOURCE OF ELEVATION:  
WVDOT, Harrisville, WV

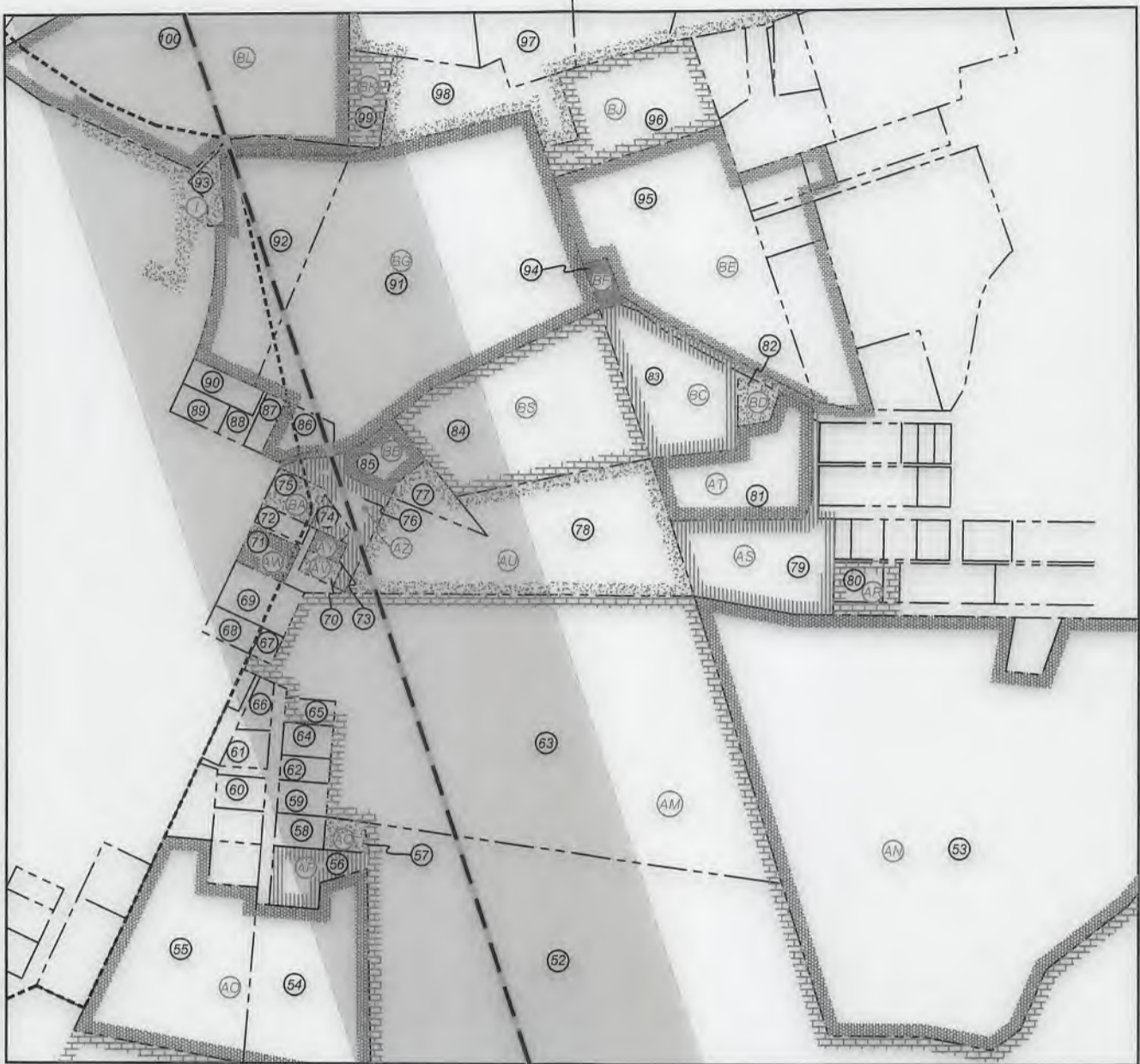


DATE: March 12 2019  
 OPERATOR'S WELL NO. Kramer 1H  
 API WELL NO MOD  
47 - 095 - 02673  
 STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
 (IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW  
 Proposed 1,014.5'  
 LOCATION: ELEVATION: Existing 1,033' WATERSHED: Outlet Middle Island Creek QUADRANGLE: Middlebourne  
 DISTRICT: Ellsworth COUNTY: Tyler  
 SURFACE OWNER: Michael J. & Melinda R. Hogue ACREAGE: 192.0  
 ROYALTY OWNER: Michael J. & Melinda R. Hogue; James F. Doan, et ux (2); Ridgetop Capital, LP; Robert J. Kocher; LEASE NO: \_\_\_\_\_ ACREAGE: \_\_\_\_\_  
 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: 22,400' MD  
 6,900' 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





FILE NO: 15-54-E-19  
 DRAWING NO: Kramer Unit 1H 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: March 12 20 19  
 OPERATOR'S WELL NO. Kramer 1H  
 API WELL NO  
47 - 095 - 02673  
 STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
 (IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW  
 Proposed 1,014.5'  
 LOCATION: ELEVATION: Existing 1,033' WATERSHED: Outlet Middle Island Creek QUADRANGLE: Middlebourne  
 DISTRICT: Ellsworth COUNTY: Tyler  
 SURFACE OWNER: Michael J. & Melinda R. Hogue ACREAGE: 192.0  
 ROYALTY OWNER: Michael J. & Melinda R. Hogue; James F. Doan, et ux (2); Ridgetop Capital, LP; Robert J. Kocher; LEASE NO: \_\_\_\_\_ ACREAGE: \_\_\_\_\_  
 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: 22,400' MD  
 6,900' 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



Antero Resources
Well No. Kramer Unit 1H
BHL MOD
Antero Resources Corporation

Table with columns A-BS and Leases. Lists lease details for various owners including Michael J. & Melinda R. Hogue, James F. Doan, et ux, and others.

Table with columns ID, TM/Par, Owner, Bk/Pg, Acres. Lists lease details for various owners including Michael J. & Melinda R. Hogue, Camille Patera, and others.

Table with columns ID, TM/Par, Owner, Bk/Pg, Acres. Lists lease details for various owners including Marvin Gene Franklin, Connie Lee & Michael D. Hickman, and others.

FILE NO: 15-54-E-19
DRAWING NO: Kramer Unit 1H 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: March 12 2019
OPERATOR'S WELL NO. Kramer 1H
API WELL NO 47 - 095 - 02673
STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
LOCATION: ELEVATION: Existing 1,033' WATERSHED: Outlet Middle Island Creek QUADRANGLE: Middlebourne
DISTRICT: Ellsworth
SURFACE OWNER: Michael J. & Melinda R. Hogue
ROYALTY OWNER: Michael J. & Melinda R. Hogue; James F. Doan, et ux (2); Ridgetop Capital, LP; Robert J. Kocher, et ux
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: 22,400' 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



## Adkins, Laura L

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**From:** Dani Devito <ddevito@shalepro.com>  
**Sent:** Monday, March 30, 2020 3:36 PM  
**To:** Adkins, Laura L  
**Subject:** [External] Kramer 1H

CAUTION: External email. Do not click links or open attachments unless you verify sender.

Laura,  
For the Kramer 1H(095-02673) there were no additional wells within the buffer and no changes to the collision avoidance needed.

Thanks!  
Dani

Dani DeVito  
Director, Permitting & Marketing



304.709.7100 ext. 103  
304.288.7104

[www.shalepro.com](http://www.shalepro.com)