Friday, January 19, 2018
WELL WORK PERMIT
Vertical / Plugging

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET
DENVER, CO 80202

Re: Permit approval for 7192 REV
47-017-05400-00-00

This well work permit is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to any additional specific conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas Inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days of completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless 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: 7192 REV
Farm Name: MOOSE, GENE & LINDA
U.S. WELL NUMBER: 47-017-05400-00-00
Vertical / Plugging
Date Issued: 1/19/2018

Promoting a healthy environment.
PERMIT CONDITIONS

West Virginia Code §22-6-11 allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

1. All pits must be lined with a minimum of 20 mil thickness synthetic liner.

2. In the event of an accident or explosion causing loss of life or serious personal injury in or about the well or while working on the well, the well operator or its contractor shall give notice, stating the particulars of the accident or explosion, to the oil and gas inspector and the Chief within twenty-four (24) hours.

3. Well work activities shall not constitute a hazard to the safety of persons.

4. **Plugging Marker Variance must be requested by the Surface Owner. In order to apply this variance a signed request by the surface owner must be received by the Office of Oil and Gas.**
STATES OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

APPLICATION FOR A PERMIT TO PLUG AND ABANDON

4) Well Type: Oil ___/ Gas ___/ Liquid injection ___/ Waste disposal ___/ (If "Gas, Production ___ or Underground storage ___) Deep ___/ Shallow___

5) Location: Elevation 1165' District West Union Watershed Headwaters Middle Island Creek County Doddridge Quadrangle Smithburg 7.5'

6) Well Operator Antero Resources Corporation Address 1615 Wynkoop Street Denver, CO 80202

7) Designated Agent CT Corporation System - Dianna Stampler Address 5400 D Big Tyler Road Charleston, WV 25313

8) Oil and Gas Inspector to be notified Name Daniel Flack Address 601 57th Street, SE Charleston, WV 25304

9) Plugging Contractor Name N/A - Antero will plug well Address

10) Work Order: The work order for the manner of plugging this well is as follows:

*Please see attached Work Order.

Ol' gum For Daniel Flack 1/19/18

Notification must be given to the district oil and gas inspector 24 hours before permitted work can commence.

Work order approved by inspector ___________________________ Date ________________
Objective: Plug and Abandon Wellbore.

Pipe Schedule:
1. 13 3/8" @ 30'. Cemented to surface. Elevation: 1,208'
2. 9-5/8" set @ 124' with 50 sks - TOC TBD.
3. 7" set @ 1,404' with 220 sks - TOC TBD
4. 4 1/2" set @ 5,359' with 325 sks - TOC TBD.

Oil and Gas Zones:
1. Maxton; Perfs (18 shots) from 1,614' – 1,622'
2. Little Lime: 1,800'-1,822'
3. Blue Monday: 1,823' – 1,870'; Perfs (21 shots) from 1,832' – 1,842'
4. Big Lime: 1,871'-1,915'
5. Big Injun: 1,916'-1,986'
6. Squaw: 1,996’ – 2,014’
7. Weir: 2,160’-2,250’
8. Gantz Sand: 2,365’-2,382’
9. Gordon: 2,552’ – 2,612’
10. Elizabeth: 3,210’ – 3,278’
12. Riley: 4,450’ – 4,460’; Perfs (20 shots) from 4,453’ – 4,458’
13. Benson: 4,910’-4,935’
14. Alexander: 5,170’-5,255’; Perfs from 5,204’-5,246’

Procedure:
1. Check and record all casing/annular pressures into Wellview.
2. Coordinate and schedule casing jacks.
3. Notify WVDEP prior to commencing work, for plug witnessing (Doddridge County Inspector).
4. Move in and rig up flat tank and frac tank (No pits will be utilized).
5. Move in rig up service unit.
6. NU BOPE and test – check and report surface pressure including bradenhead pressure.
7. Kill well.
8. RU wireline and lubricator.
10. MIRU logging crew.
11. Load Hole with 6% gel.
12. Run CBL from PBTD to surface.
13. Locate TOC around 4.5" casing.
14. Discuss results with completions engineers before proceeding.
15. TIH with 2 3/8" tubing to 5,300’.
16. MIRU cement services. Mix and pump 47 sacks for balanced plug from 4,800’-5,300’. (Class A cement + 2% CaCl2, 20% excess included; yield =1.18 ft³/sk, WR=5.2 gal/sk)
   a. Displace to balance plug
   b. Slowly pull out of cement plug.
   c. Reverse circulate tubing clear of cement.
17. Pull up to 4,500’
18. MIRU cement services. Mix and pump 19 sacks for balanced plug from 4,300’-4,500’. (Class A cement + 2% CaCl2, 20% excess included; yield =1.18 ft³/sk, WR=5.2 gal/sk)
   a. Displace to balance plug
   b. Slowly pull out of cement plug.
   c. Reverse circulate tubing clear of cement.
19. Pull up to 3,400’
20. MIRU cement services. Mix and pump 28 sacks for balanced plug from 3,100’-3,400’. (Class A cement + 2% CaCl2, 20% excess included; yield =1.18 ft³/sk, WR=5.2 gal/sk)
   a. Displace to balance plug
   b. Slowly pull out of cement plug.
   c. Reverse circulate tubing clear of cement.
21. Pull up to 2,620’
22. MIRU cement services. Mix and pump 19 sacks for balanced plug from 2,420'-2,620'. (Class A cement + 2% CaCl2, 20% excess included; yield =1.18 ft³/sk, WR=5.2 gal/sk)
   a. Displace to balance plug
   b. Slowly pull out of cement plug.
   c. Reverse circulate tubing clear of cement.

23. Pull up to 2,400'

24. MIRU cement services. Mix and pump 65 sacks for balanced plug from 1,700'-2,400'. (Class A cement + 2% CaCl2, 20% excess included; yield =1.18 ft³/sk, WR=5.2 gal/sk)
   a. Displace to balance plug
   b. Slowly pull out of cement plug.
   c. Reverse circulate tubing clear of cement.

25. Pull up to 1,650'

26. MIRU cement services. Mix and pump 14 sacks for balanced plug from 1,500'-1,650'. (Class A cement + 2% CaCl2, 20% excess included; yield =1.18 ft³/sk, WR=5.2 gal/sk)
   a. Displace to balance plug
   b. Slowly pull out of cement plug.
   c. Reverse circulate tubing clear of cement.
   d. WOC and tag TOC @ 1,500'

27. POOH with tubing.

28. Lubricate and RIH w/ CIBP and set at 1,500'. POOH w/ wireline.

29. PT CIBP to 500 psi.

30. RIH wireline and run free point above TOC in 4.5" casing
   a. Chemical cut at TOC in 4 ½" casing (exact depth determined via freepoint and CBL)
   b. RU casing jacks and POOH – LD 4.5" casing.

31. PU and RIH w/ tubing to 1,499' (One foot above CIBP).

32. Mix and pump 42 sacks for balanced plug on CIBP from 1,300'-1,499' (Class A cement + 2% CaCl2, 20% excess included; yield =1.18 ft³/sk, WR=5.2 gal/sk).
   a. Displace to balance plug
   b. Slowly pull out of cement plug
   c. Reverse circulate tubing clear of cement.
   d. WOC 8 hours.
   e. RIH and tag plug @ 1,300'
   f. If top of cement is deeper than 1,300', mix and spot cement so top is a minimum depth of 1,300'. Tag TOC.

33. Pull up to 200'

34. Mix and pump ~55 sacks from 200'-surface (Class A cement + 2% CaCl2, 20% excess included; yield =1.18 ft³/sk, WR=5.2 gal/sk)

35. TOOH

36. Wait on cement 8 hrs.

37. Set offsite marker plate with API number (API No.: 47-017-05400).

38. Establish remote dry hole marker & provide direction and distance to DEP

**VARIANCE must be REQUESTED by SURFACE OWNER.**
The Office of Oil and Gas is considering granting a general variance to the requirements under 35CSR4-5.5b of erecting a monument upon the plugging of certain wells. If granted, the following conditions will be met:

1) the well will be surveyed and a plat constructed as required under 22-6 of the WV Code and 35CSR4,

2) a readily visible, permanent offset marker, in as close proximity as reasonably possible, will be erected and will provide distance and bearing information to the plugged well,

3) the plugging affidavit (form WR-38), will document the absence of a monument at the well location and document the existence and location of the offset marker,

4) a steel plate no smaller that one square foot shall be affixed to the well casing no deeper than three feet below the ground surface and be inscribed with the api number of the well.

To qualify under the general variance, an operator may make a variance request to the Chief of the Office of Oil and Gas for a specific well(s) in conjunction with a showing of good cause by the surface owner.
State of West Virginia  
Department of Environmental Protection  
Office of Oil and Gas  

Well Operator's Report of Well Work  

Farm name: Moose, Gene & Linda  
Operator Well No.: 7192 Rev  

LOCATION:  
Elevation: 1207.58'  
Quadrangle: Smithsburg  

District: West Union  
County: Doddridge  

Latitude: 4 610 Feet South of 39 Deg. 17 Min. 30 Sec.  
Longitude: 80 455 Feet West of 80 Deg. 42 Min. 30 Sec.  

Company: Dominion Exploration & Production, Inc.  

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<td>Rotary X Cable Rig</td>
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<td>Fresh Water Depth (ft): N/A</td>
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Is coal being mined in area (Y/N)? N  

Coal Depths (ft.): N/A  

OPEN FLOW DATA  

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<th>Alexander</th>
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<td>Riley</td>
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<td>Producing formation Warren Pay zone depth (ft) 3262-3370</td>
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<td>Final open flow 133 MCF/d Final open flow 0 Bbl/d</td>
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<td>Second producing formation Maxton Pay zone depth (ft) 1614-1622'</td>
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NOTE: ON BACK OF THIS FORM PUT THE FOLLOWING: 1. DETAILS OF PERFORATED INTERVALS, FRACURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2. THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLOBIE.  

Signed:  
By: Rodney J. Biggs  
Date: 07/10/07  

Nov 21 2007
RAN BOND LOG. TD - 5343', TOC - 1440', PERFED AND FRACED AS FOLLOWS:
ALEXANDER, 5204'-5246', 20 HOLES, BD 2500#, AVG RATE 18 BPM, AVG PRESS 1615#, 293 BBLs, TOT SAND 11,000#, 31 MSCFN2, ISP 1030#
RILEY, 4453'-4458', 20 HOLES, BD 1540#, AVG RATE 18 BPM, AVG PRESS 1685#, 371 BBLs, TOT SAND 20,000#, 36 MSCFN2, ISP 1300#
WARREN, 3262'-3370', 20 HOLES, BD 3550#, AVG RATE 18 BPM, AVG PRESS 1856#, 314 BBLs, TOT SAND 17,500#, 39 MSCFN2, ISP 1300#
BLUE MONDAY, 1832'-1842', 21 HOLES, BD 3880#, AVG RATE 18 BPM, AVG PRESS 1798#, 266 BBLs, TOT SAND 15,000#, 29 MSCFN2, ISP 1120#
MAXTON, 1614'-1622', 18 HOLES, BD 4050#, AVG RATE 3 BPM, AVG PRESS 3950#, 20 BBLs, TOT SAND - N/A, MSCFN2 - N/A, ISP 1400#

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**GAMMA RAY FORMATION TOPS**

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<tr>
<th>DEP1#7192</th>
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<td>LITTLE LIM</td>
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<td>1870</td>
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<td>BIG LIME</td>
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<td>BIG INJUC SAND</td>
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<td>GANTZ SAND</td>
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<td>LTD</td>
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</table>
Operator Name: DOMINION EXPLORATION & PRODUCTION, INC.

Watershed: BUCKEYE CREEK

Quadrangle: SMITHBURG

Elevation: 1207.58'

County: DODDRIDGE

District: WEST UNION

Description of anticipated Pit Waste: FLUIDS ASSOCIATED WITH THE DRILLING OF NEW GAS WELLS

Will a synthetic line be used in the pit? YES

Proposed Disposal Method For Treated Pit Wastes:

- [X] Land Application
- [ ] Underground Injection (UIC Permit Number _____________)
- [ ] Reuse (at API Number _____________)
- [ ] Off Site Disposal (Supply for WW-9 for disposal location)
- [ ] Other (Explain) _____________

Proposed Work For Which Pit Will Be Used:

- [X] Drilling
- [ ] Swabbing
- [ ] Workover
- [ ] Plugging
- [ ] Other (Explain) _____________

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on June 14, 1994, by the Office of Oil and Gas of the West Virginia Division of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature: RODNEY J. BIGGS

Company Official (Typed Name): RODNEY J. BIGGS

Company Official Title: GENERAL MANAGER WEST VIRGINIA & APPALACHIAN CBM

Subscribed and sworn before me this 22nd day of March ____, 2007

__________________________
BRANDI M. KELLEY
Notary Public

My commission expires June 13, 2015
**Proposed Vegetation Treatment:** 3.00 Acres Disturbed

- Lime applied according to pH test
- Fertilizer (10-20-20 or equivalent) applied at 500 lbs per acre
- Mulch applied: HAY OR STRAW

**Seed Mixtures**

<table>
<thead>
<tr>
<th>Area I</th>
<th>Seed Type</th>
<th>lbs/acre</th>
<th>Area II</th>
<th>Seed Type</th>
<th>lbs/acre</th>
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</thead>
<tbody>
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<td>ORCHARDGRASS</td>
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<td>ORCHARDGRASS</td>
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<td>BIRDSFOOT TREFOIL</td>
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<td>BIRDSFOOT TREFOIL</td>
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<td>LADINO CLOVER</td>
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<td></td>
<td>LADINO CLOVER</td>
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</table>

**Additional Information:**
- Drawing(s) of road, location, pit, and proposed area for land application.
- Photocopy of involved 7.5' topographic sheet.

**Plan Approved by:**

**Date:** 3/2/2007

**Field Reviewed:** Yes

**Department of Environmental Protection**
LOCATION IS ON A WOODED HILLSIDE BENCH. USABLE TIMBER WILL BE CUT AND STACKED. TOPSOIL WILL BE STOCKPILED FOR USE IN REVEGETATION.

ACCESS ROAD LEAVES CR 50/69 AND UTILIZES AN EXISTING WELL ROAD TO WELL 017-0919. FROM HERE A TIMBER ROAD WILL BE UPGRADED ON UP THE HILL TO A POINT WHERE A NEW ROAD WILL BE CUT UP TO THE SITE. ROCK WILL BE USED WHERE NECESSARY.

ALL GRADES OVER 20% ARE NOTED.
STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE OF APPLICATION TO PLUG AND ABANDON A WELL

4) Surface Owner(s) to be served:
   (a) Name: Gene P. & Linda G. Moose
   Address: 680 Barlow Greenmount Road
             Gettysburg, PA 17325
   
   (b) Name: __________________________________________
   Address: ____________________________________________
   
   (c) Name: *All other surface owners with existing access road disturbance are off-lease and not required to be notified.
   Address: ____________________________________________

5) Coal Operator
   (a) Name: __________________________________________
   Address: ____________________________________________
   
   (b) Coal Owner(s) with Declaration
   Name: ____________________________________________
   Address: ____________________________________________
   
   (c) Coal Lessee with Declaration
   Name: ____________________________________________
   Address: ____________________________________________

6) Inspector
   Name: Daniel Flack
   Address: 601 57th Street SE
             Charleston, WV 25304
   Telephone: 304-545-0109

TO THE PERSONS NAMED ABOVE: You should have received this Form and the following documents:

(1) The application to Plug and Abandon a Well on Form WW-4B, which sets out the parties involved in the work and describes the well its and the plugging work order; and
(2) The plat (surveyor’s map) showing the well location on Form WW-6.

The reason you received these documents is that you have rights regarding the application which are summarized in the instructions on the reverse side. However, you are not required to take any action at all.

Take notice that under Chapter 22-6 of the West Virginia Code, the undersigned well operator proposes to file or has filed this Notice and Application and accompanying documents for a permit to plug and abandon a well with the Chief of the Office of Oil and Gas, West Virginia Department of Environmental Protection, with respect to the well at the location described on the attached Application and depicted on the attached Form WW-6. Copies of this Notice, the Application, and the plat have been mailed by registered or certified mail or delivered by hand to the person(s) named above (or by publication in certain circumstances) on or before the day of mailing or delivery to the Chief.

Well Operator: Antero Resources Corporation
By: Diana Hoff
Its: Vice President, Operations
Address: 1615 Wynkoop Street
         Denver, CO 80202
Telephone: 303-357-7310

Subscribed and sworn before me this 24th day of October 2017
My Commission Expires 7/18/2020

Oil and Gas Privacy Notice

The Office of Oil and Gas processes your personal information, such as name, address and phone number, as a part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use of your personal information, please contact DEP’s Chief Privacy Officer at depprivacyofficer@wv.gov.
STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

CONSTRUCTION AND RECLAMATION PLAN AND SITE REGISTRATION APPLICATION FORM
GENERAL PERMIT FOR OIL AND GAS PIT WASTE DISCHARGE

Operator Name Antero Resources Corporation  OP Code 494507062

Watershed Headwaters Middle Island Creek  Quadrangle Smithburg 7.5’

Elevation 1165’  County Doddridge  District West Union

Description of anticipated Pit Waste: No pit will be used at this site (All fluids will be stored in tanks and either reused or hauled off site)

Will a synthetic liner be used in the pit? N/A

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number *UIC Permit # will be provided on Form WR-34)
- Reuse (at API Number Future permitted well locations when applicable. API# will be provided on Form WR-34)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain)

Proposed Work For Which Pit Will Be Used:

- Drilling
- Workover
- Swabbing
- Plugging
- Other (Explain)

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature  Gretchen Kohler

Company Official (Typed Name)  Gretchen Kohler

Company Official Title  Senior Environmental & Regulatory Manager

Subscribed and sworn before me this 24th day of October, 2017

Notary Public

My commission expires 7/8/2020
Proposed Revegetation Treatment: Acres Disturbed 5.26 acres  
Prevegetation pH

Lime 2-3 Tons/acre or to correct to pH 6.5

Fertilizer (10-20-20 or equivalent) 500 lbs/acre (500 lbs minimum)

Mulch 2-3 Tons/acre (Hay, straw or wood fiber (will be used where needed)

Seed Mixtures

<table>
<thead>
<tr>
<th>Seed Type</th>
<th>Area I</th>
<th>lbs/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Ryegrass</td>
<td>40</td>
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<tr>
<td>Field Bromegrass</td>
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</tbody>
</table>

Please reference Table IV-3 on page 7 of the Well #7192REV Well Plugging Plan

*or type of grass seed requested by surface owner

<table>
<thead>
<tr>
<th>Seed Type</th>
<th>Area II</th>
<th>lbs/acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crownvetch</td>
<td>10-15</td>
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<tr>
<td>Tall Fescue</td>
<td>30</td>
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</tbody>
</table>

Please reference Table IV-4A on page 7 of the Well #7192REV Well Plugging Plan

*or type of grass seed requested by surface owner

Attach:
Drawing(s) of road, location, pit and proposed area for land application.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by:

Comments:

Title: ____________________ Date: ____________________

Field Reviewed? (______) Yes  (______) No
West Virginia Department of Environmental Protection
Office of Oil and Gas
WELL LOCATION FORM: GPS

API: 47-017-05400                WELL NO.: 7192REV

FARM NAME: Moose, Gene & Linda

RESPONSIBLE PARTY NAME: Antero Resources Corporation

COUNTY: Doddridge                DISTRICT: West Union

QUADRANGLE: Smithsburg

SURFACE OWNER: Gene P & Linda G Moose

ROYALTY OWNER: Consol Gas Company

UTM GPS NORTING: 4347749.41 m (1165')

UTM GPS EASTING: 523673.0 m          GPS ELEVATION: 355.1 m

The Responsible Party named above has chosen to submit GPS coordinates in lieu of preparing a new well location plat for a plugging permit or assigned API number on the above well. The Office of Oil and Gas will not accept GPS coordinates that do not meet the following requirements:

2. Accuracy to Datum – 3.05 meters
3. Data Collection Method:
   Survey grade GPS X: Post Processed Differential ____
   Real-Time Differential __
   Mapping Grade GPS X: Post Processed Differential ____
   Real-Time Differential __

4. Letter size copy of the topography map showing the well location.

I, the undersigned, hereby certify this data is correct to the best of my knowledge and belief and shows all the information required by law and the regulations issued and prescribed by the Office of Oil and Gas.

Signature  Permitting Supervisor  10/24/17