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west virginia department of environmental protection

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Office of Oil and Gas  
601 57th Street SE  
Charleston, WV 25304  
(304) 926-0450  
(304) 926-0452 fax

Earl Ray Tomblin, Governor  
Randy C. Huffman, Cabinet Secretary  
www.dep.wv.gov

## PERMIT MODIFICATION APPROVAL

May 07, 2013

ANTERO RESOURCES APPALACHIAN CORPORATION  
1625 17TH STREET, SUITE 300  
DENVER, CO 80202

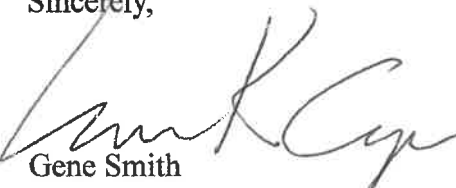
Re: Permit Modification Approval for API Number 8509981 , Well #: PULLMAN UNIT 1H  
**extend horizontal leg**

**Oil and Gas Operator:**

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.

Please call James Martin at 304-926-0499, extension 1654 if you have any questions.

Sincerely,

for   
Gene Smith  
Regulatory/Compliance Manager  
Office of Oil and Gas

**Promoting a healthy environment.**

05/31/2024



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**west virginia** department of environmental protection

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Earl Ray Tomblin, Governor  
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September 06, 2012

**WELL WORK PERMIT**  
**Horizontal 6A Well**

This permit, API Well Number: 47-8509981, issued to ANTERO RESOURCES APPALACHIAN CORPORATION, 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 all 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 drilling, 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.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-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) 926-0499 ext. 1654.

James Martin  
Chief

Operator's Well No: PULLMAN UNIT 1H  
Farm Name: CAMPBELL, JOHN A. & LINDA J.  
**API Well Number: 47-8509981**  
**Permit Type: Horizontal 6A Well**  
Date Issued: 09/05/2012

**Promoting a healthy environment.**

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05/31/2024

John Campbell (North)  
85-9981

## PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) 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

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1. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
2. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the fill material shall be within plus or minus 2% of the optimum moisture content as determined by the standard proctor density test. Each lift must meet 95 % compaction of the optimum density based on results from the standard proctor density test of the actual soils used in specific engineered fill sites. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
3. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
4. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within twenty-five hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
5. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
6. No clearing debris shall be buried.
7. Final Site Design, Construction Plan along with Erosion and Sediment Control Measures shall at minimum, use the Best Management Practices found in The West Virginia Erosion and Sediment Control Field Manual dated May 2012.

05/31/2024

John Campbell North  
85-9981

8. The contractor shall do in place density tests **every lift** on all fill material, with a minimum of two tests per lift per acre of fill. Every lift must pass a 95% compaction based on the standard proctor density test of the actual soils used in specific engineered sites.
9. The contractor may **not** proof-roll the soil in lieu of standard proctor testing.
10. Permanent stabilization shall be applied to areas that are to be left dormant for more than **six (6) months.**

05/31/2024

WW - 6B  
(3/13)

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

1) Well Operator: Antero Resources Appalachian Corporation 494488557 085- Ritchie Union Pullman 7.5'  
Operator ID County District Quadrangle

2) Operator's Well Number: Pullman Unit 1H Well Pad Name: John Campbell North Pad (Existing)

3 Elevation, current ground: 1014' Elevation, proposed post-construction: 1014'

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

5) Existing Pad? Yes or No: Yes

6) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):  
Marcellus Shale: 6,800' TVD, Anticipated Thickness- 50' feet, Associated Pressure- 3,000#

7) Proposed Total Vertical Depth: 6800' TVD

8) Formation at Total Vertical Depth: Marcellus

9) Proposed Total Measured Depth: 14000' MD

10) Approximate Fresh Water Strata Depths: 30', 103'

11) Method to Determine Fresh Water Depth: Kuhn Unit 1H (API# 47-085-1000) on the same pad

12) Approximate Saltwater Depths: 1850'

13) Approximate Coal Seam Depths: None available

14) Approximate Depth to Possible Void (coal mine, karst, other): None anticipated

15) Does proposed well location contain coal seams directly overlying or adjacent to an active mine? If so, indicate name and depth of mine: No

16) Describe proposed well work: 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 freshwater 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.

17) Describe fracturing/stimulating methods in detail:  
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."

18) Total area to be disturbed, including roads, stockpile area, pits, etc, (acres): 9.98 acres (existing)

19) Area to be disturbed for well pad only, less access road (acres): 2.65 acres (existing)

WW - 6B  
(3/13)

20)

CASING AND TUBING PROGRAM

<u>TYPE</u>	<u>Size</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft.</u>	<u>FOOTAGE: For Drilling</u>	<u>INTERVALS: Left in Well</u>	<u>CEMENT: Fill -up (Cu. Ft.)</u>
Conductor	20"	New	H-40	94#	40'	40'	CTS, 38 Cu. Ft.
Fresh Water	13-3/8"	New	J-55/H-40	54.5#/ 48#	400'	400'	CTS, 556 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	2505'	2505'	CTS, 1020 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	20#	14000'	14000'	3450 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#		7300'	
Liners							

<u>TYPE</u>	<u>Size</u>	<u>Wellbore Diameter</u>	<u>Wall Thickness</u>	<u>Burst Pressure</u>	<u>Cement Type</u>	<u>Cement Yield</u>
Conductor	20"	24"	0.438"	1530	Class A	1.18
Fresh Water	13-3/8"	17-1/2"	0.38"/0.33"	2730/1730	Class A	1.18
Coal	9-5/8"	12-1/4"	0.352"	3520	Class A	1.18
Intermediate						
Production	5-1/2"	8-3/4" & 8-1/2"	0.361"	12630	Lead-H/POZ & Tail - H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11200		
Liners						

PACKERS

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



WW - 6B  
(3/13)

21) 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.

22) Describe all cement additives associated with each cement type.

Conductor: no additives, Class A cement.

Surface: Class A cement with 2% calcium and 1/4 lb flake, 5 gallons of clay treat

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

23) 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.

**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
**W.VA. CODE §22-6A - WELL WORK PERMIT APPLICATION**

85      04      562

1) Well Operator: Antero Resources Appalachian Corporation      494488557      085- Ritchie      Union      Pullman 7.5'  
Operator ID      County      District      Quadrangle

2) Operator's Well Number: Pullman Unit 1H      Well Pad Name: John Campbell North Pad

3 Elevation, current ground: -1012'      Elevation, proposed post-construction: 1014'

4) Well Type: (a) Gas       Oil   
Other   
(b) If Gas: Shallow       Deep   
Horizontal      

5) Existing Pad? Yes or No: No

6) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):  
Marcellus Shale: 6,800' TVD, Anticipated Thickness- 50' feet, Associated Pressure- 3,000#

7) Proposed Total Vertical Depth: 6,800' TVD

8) Formation at Total Vertical Depth: Marcellus Shale

9) Proposed Total Measured Depth: 12,000' MD

10) Approximate Fresh Water Strata Depths: 192', 230', 338'

11) Method to Determine Fresh Water Depth: Offset well records

12) Approximate Saltwater Depths: 1850'

13) Approximate Coal Seam Depths: None available

14) Approximate Depth to Possible Void (coal mine, karst, other): None anticipated

15) Does land contain coal seams tributary or adjacent to, active mine? No

16) Describe proposed well work: Drill, perforate, fracture a new horizontal shallow well and complete Marcellus Shale

17) Describe fracturing/stimulating methods in detail:  
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."

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JUL 10 2024

05/31/2024



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<b>TYPE</b>	<u>Size</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft.</u>	<u>FOOTAGE: For Drilling</u>	<u>INTERVALS: Left in Well</u>	<u>CEMENT: Fill -up (Cu. Ft.)</u>
Conductor	20"	New	H-40	94#	40'	40'	CTS
Fresh Water	13-3/8"	New	J-55	54.5#	400'	400'	CTS, 556 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	2505'	2505'	CTS, 1020 Cu. Ft.
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Tubing	2-3/8"	New	N-80	4.7#		7300'	
Liners							

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Tubing	2-3/8"	4.778"	0.19"	11200		
Liners						

**PACKERS**

Kind:				
Sizes:				
Depths Set:				

05/31/2024

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Conductor: no centralizers

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Production Casing: one centralizer at shoe joint and one every 3 joints to top of cement in intermediate casing.

22) Describe all cement additives associated with each cement type.

Conductor: no additives, grout cement.

Surface: Class A cement with 2% calcium and 1/4 lb flake, 5 gallons of clay treat

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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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.

05/31/2024

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 Appalachian Corporation OP Code 494488557

Watershed Left Fork Quadrangle Pullman 7.5'

Elevation 1014' County Ritchie District Union

Description of anticipated Pit Waste: Drilling and Flowback Fluids and Cuttings

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes  No

Will a synthetic liner be used in the pit? Yes  If so, what mil.? 60 mil

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection ( UIC Permit Number \_\_\_\_\_ )
- Reuse (at API Number Future permitted well locations when applicable. API# will be provided on Form WR-34)
- Off Site Disposal (Meadowfill Landfill Permit #SWF-1032-98)
- Other (Explain \_\_\_\_\_)

Drilling medium anticipated for this well? Air, freshwater, oil based, etc. Surface - Air/Freshwater, Intermediate - Dust/Stiff Foam, Production - Water Based Mud

-If oil based, what type? Synthetic, petroleum, etc. N/A

Additives to be used? Please See Attachment

Will closed loop system be used? Yes

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Removed offsite and taken to landfill

-If left in pit and plan to solidify what medium will be used? Cement, lime, N/A

-Landfill or offsite name/permit number? Meadowfill Landfill (Permit #SWF-1032-98)

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 *Cole Kilstrom*

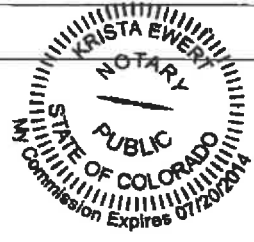
Company Official (Typed Name) Cole Kilstrom

Company Official Title Environmental Specialist

Subscribed and sworn before me this 29<sup>th</sup> day of June, 20 12

*Krista Ewert* Notary Public

My commission expires 07/20/2014

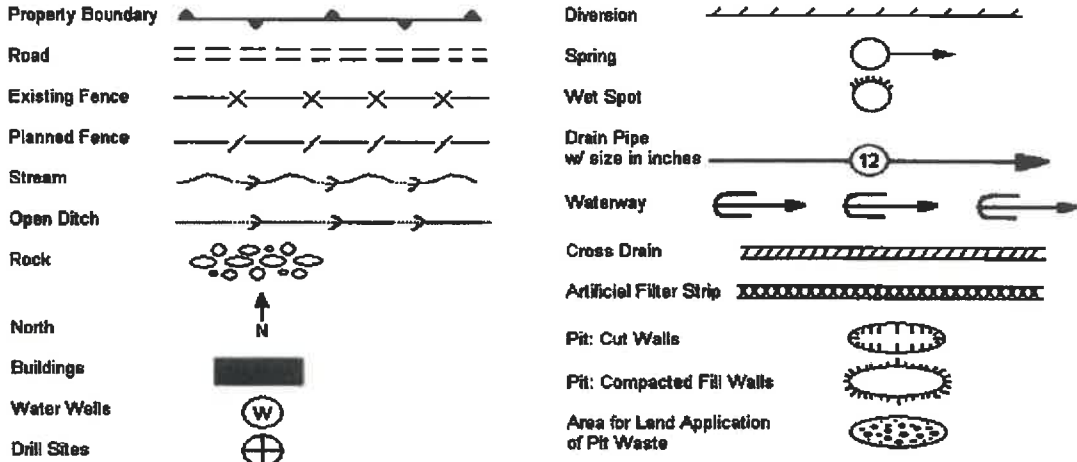


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AUG 22 2012

WV Department of  
Environmental Protection

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New Pad (2.65) + New Frac Pit 1 (3.12) + New Access Roads (3.02) + Waste & Spoil Pads/Piles (1.19) = 9.98 Acres

Proposed Revegetation Treatment: Acres Disturbed 9.95

Prevegetation pH 6.0

Lime 4 Tons/acre or to correct to pH 6.5

*present & until all out area no less than 2 to 3 years*

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

Mulch 2-3 Tons/acre Hay or straw or Wood Fiber (will be used where needed)

Seed Mixtures

Seed Type	Area I (Temporary) lbs/acre	Seed Type	Area II (Permanent) lbs/acre
Tall Fescue	45	Tall Fescue	45
Perennial Rye Grass	20	Perennial Rye Grass	20

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: *David Williams*

Comments: \_\_\_\_\_

Title: *oil & gas inspector* Date: *8-20-12*

Field Reviewed?  Yes  No

**RECEIVED**  
Office of Oil & Gas  
AUG 22 2012  
WV Department of Environmental Protection

85-9981

David W. Cam  
8-20-12



# Well Site Safety Plan

## Antero Resources

**Well Name: Campbell Unit 1H, Campbell Unit 2H,  
Pullman Unit 1H and Pullman Unit 2H**

**Pad Location: JOHN CAMPBELL NORTH PAD**  
Ritchie County/ Union District

**GPS Coordinates: Lat 39°10'51.46"/Long 80°55'47.81"**

### Driving Directions:

**FROM EAST:** From the intersection of I-79 and Hwy 50 near Bridgeport WV, head west on Hwy 50 for ~39.6 miles. Turn LEFT onto W Virginia 74 S, and follow for ~7.4 miles. Turn RIGHT onto Co Rd 9 (Main St) and continue for ~0.1 miles. Turn LEFT onto Co Rd 7/9 (Slab Creek Road) and continue for ~0.7 miles. Continue onto Co Rd 9/7/Left Fork Turtle Run for ~0.7 miles. Look for rig signs and location on the right. Drill site is right off the road.

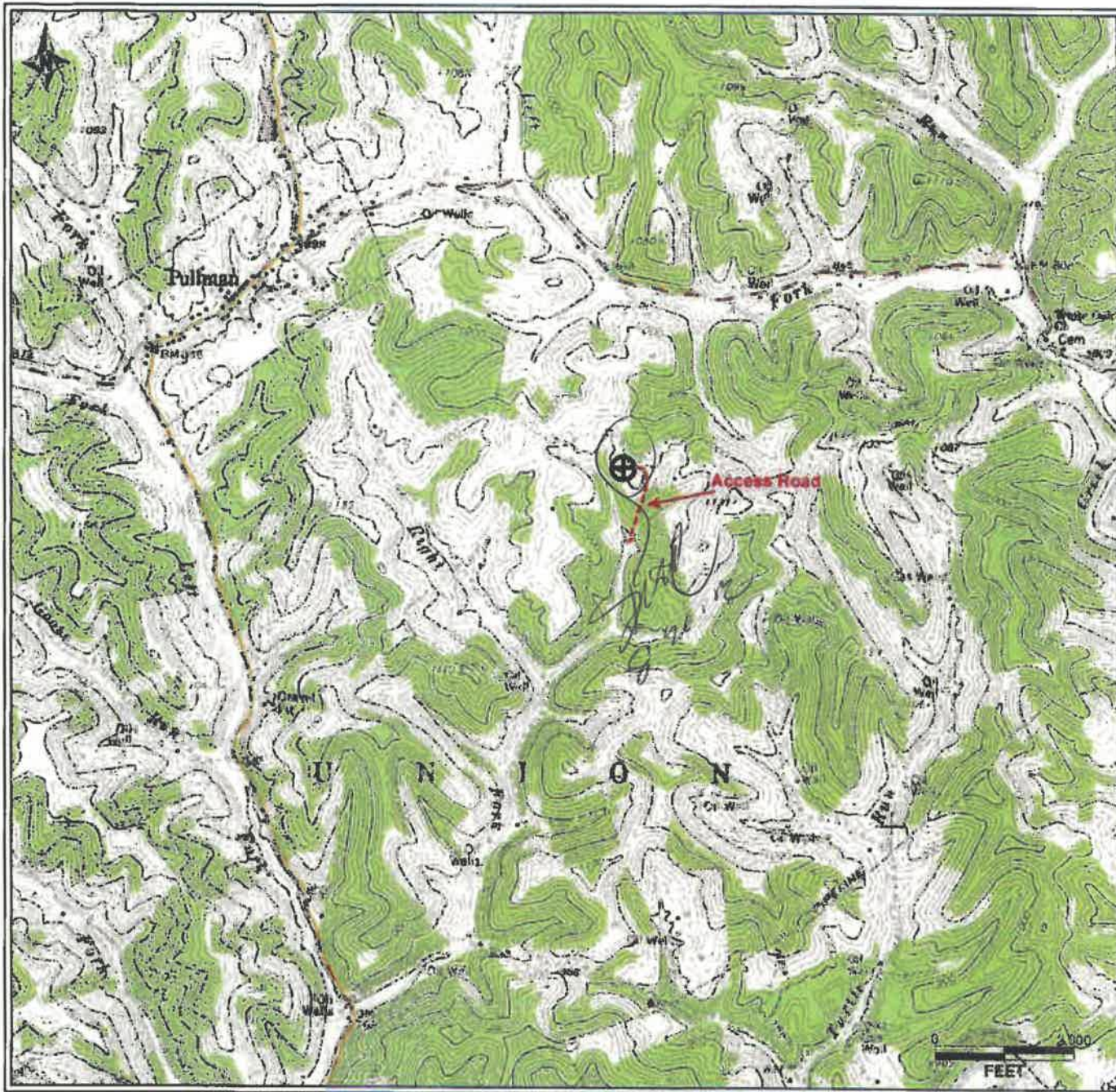
**FROM WEST:** From the Intersection of I-77 and Hwy 50 near Parkersburg WV, head east on Hwy 50 for ~ 32.3 miles. Turn RIGHT onto W Virginia 74 S, and follow for ~7.4 miles. Turn LEFT onto Co Rd 7/9 (Slab Creek Road) and continue for ~0.7 miles. Continue onto Co Rd 9/7/Left Fork Turtle Run for ~0.7 miles. Look for rig signs and location on the right. Drill site is right off the road.

Office of Oil & Gas  
AUG 22 2012  
WV Department of  
Environmental Protection

SSP - Page 1

05/31/2024





PETRA 6/26/2012 2:24:13 PM

**Antero Resources Corporation**

APPALACHIAN BASIN

Pullman Unit 1H  
Ritchie County



REMARKS  
QUADRANGLE: PULLMAN  
WATERSHED: LEFT FORK  
DISTRICT: UNION

Date: 6/26/2012

**RECEIVED**  
Office of Oil & Gas  
AUG 22 2012  
WV Department of  
Environmental Protection

05/31/2024



LATITUDE 39°12'30"

3,829'

LONGITUDE 80°55'00"

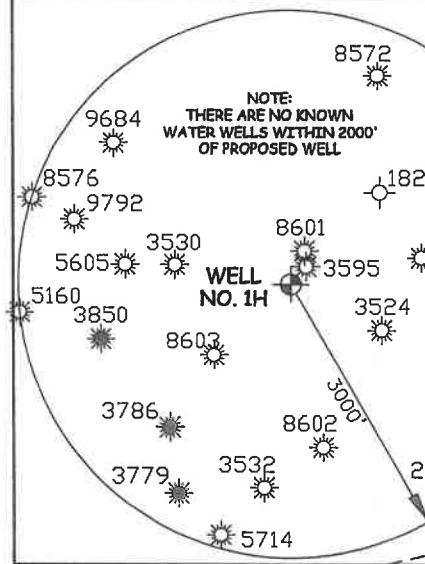
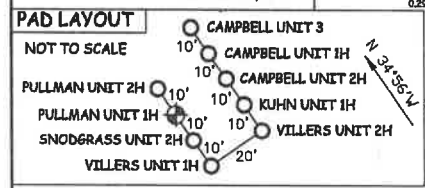
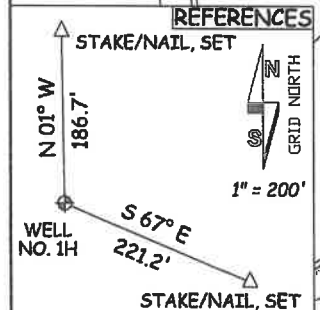
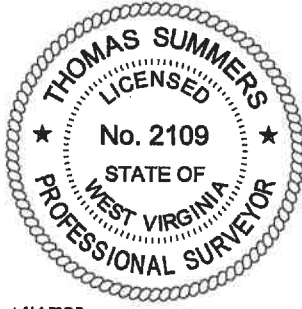
9,978'

6,358' TO BOTTOM HOLE

### Antero Resources Appalachian Corporation Well No. Pullman Unit 1H

**NOTES:**  
**WELL 1H TOP HOLE INFORMATION:**  
 N: 251,239ft E: 1,594,591ft  
 LAT: 39°10'51.38" LON: 80°55'48.62"  
**BOTTOM HOLE INFORMATION:**  
 N: 255,074ft E: 1,591,036ft  
 LAT: 39°11'27.16" LON: 80°56'32.82"  
**WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE.**  
 ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

**(NAD) 83 (UTM) ZONE 17 COORDS:**  
**WELL 1H TOP HOLE INFORMATION:**  
 N: 4,336,867m E: 506,046m  
**BOTTOM HOLE INFORMATION:**  
 N: 4,338,017m E: 504,943m



JOB # 12-042  
 DRAWING # PULLMANUNIT1H  
 SCALE 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY SUBMETER  
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

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 REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS

WILLOW LAND SURVEYING PLLC  
 266 HUSHERS RUN RD PENNSBORO WEST VIRGINIA 26415

**LEGEND**

— Surface Owner Boundary Lines +/-  
 - - - Interior Surface Tracts +/-  
 X Existing Fence  
 ⊕ Found monument, as noted

THOMAS SUMMERS P.S. 2109

DATE 06/20/12  
 OPERATOR'S WELL# PULLMAN UNIT #1H

API WELL # 47 - 085 - 9981H6A  
 STATE COUNTY PERMIT

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS

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

LOCATION: ELEVATION 1,014' WATERSHED LEFT FORK  
 QUADRANGLE PULLMAN 7.5' DISTRICT UNION COUNTY RITCHIE

SURFACE OWNER JOHN A. & LINDA J. CAMPBELL ACREAGE 120.25 ACRES +/-  
 OIL & GAS ROYALTY OWNER FREEMAN CAMPBELL (KEY 25); LEASE ACREAGE 58 ACRES+;  
 JOHN A. CAMPBELL (ARAC); MARY F. HARMS (KEY 22) 132 ACRES+; 130.39 ACRES+

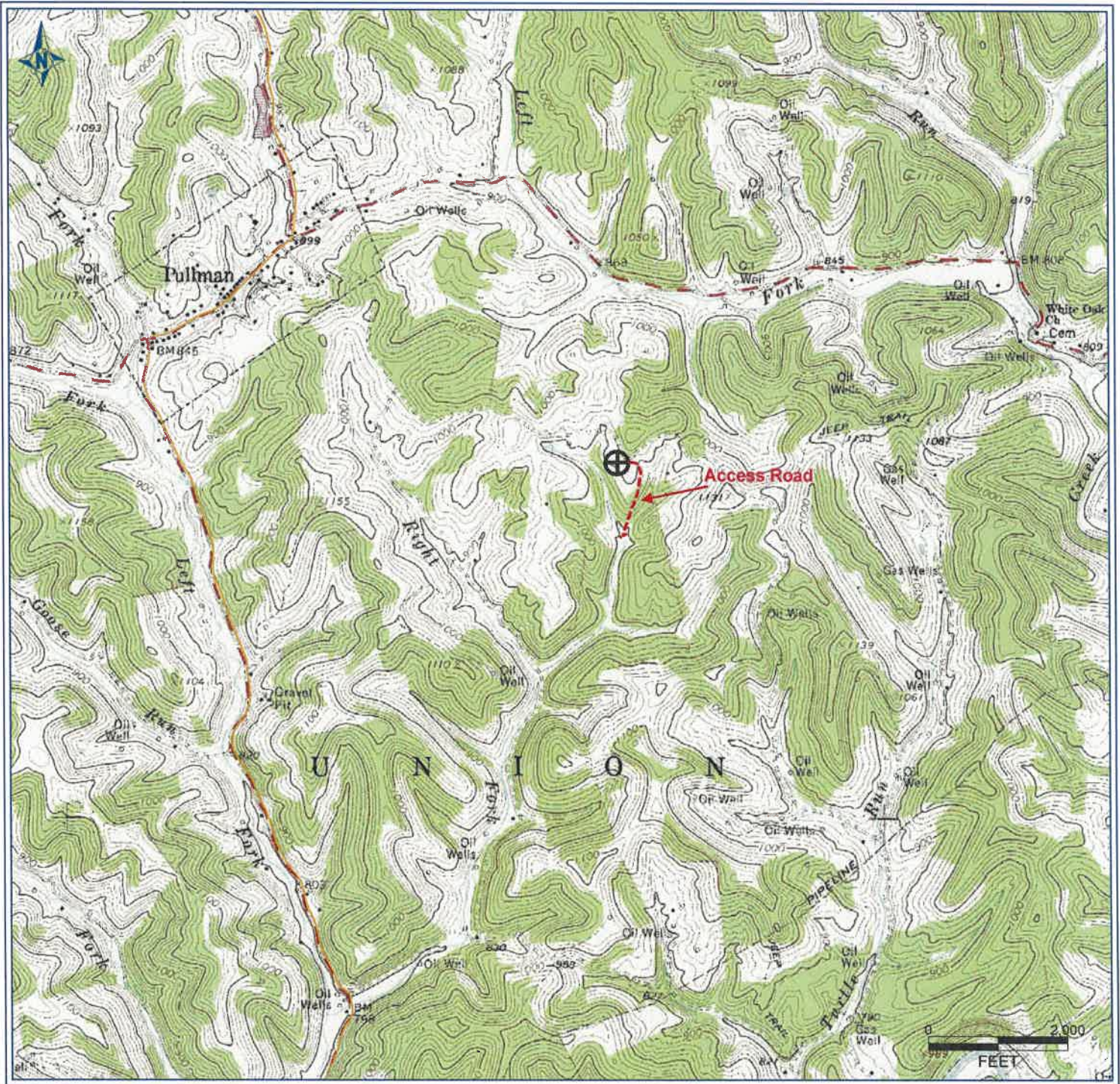
PROPOSED WORK: DRILL  CONVERT \_\_\_ DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR STIMULATE   
 PLUG OFF OLD FORMATION \_\_\_ PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_ PLUG & ABANDON CLEAN OUT & REPAIR

TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,800' TVD 13,000' MD

WELL OPERATOR ANTERO RESOURCES APPALACHIAN CORP. DESIGNATED AGENT DIANNA STAMPER  
 ADDRESS 1625 17TH STREET ADDRESS 5400 D BIG TYLER ROAD  
 FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

COUNTY NAME PERMIT





PETRA 6/26/2012 2:24:13 PM

Antero Resources Corporation

APPALACHIAN BASIN

Pullman Unit 1H  
Ritchie County



REMARKS  
 QUADRANGLE: PULLMAN  
 WATERSHED: LEFT FORK  
 DISTRICT: UNION

Date: 6/26/2012

JUL 10 2012

05/31/2024



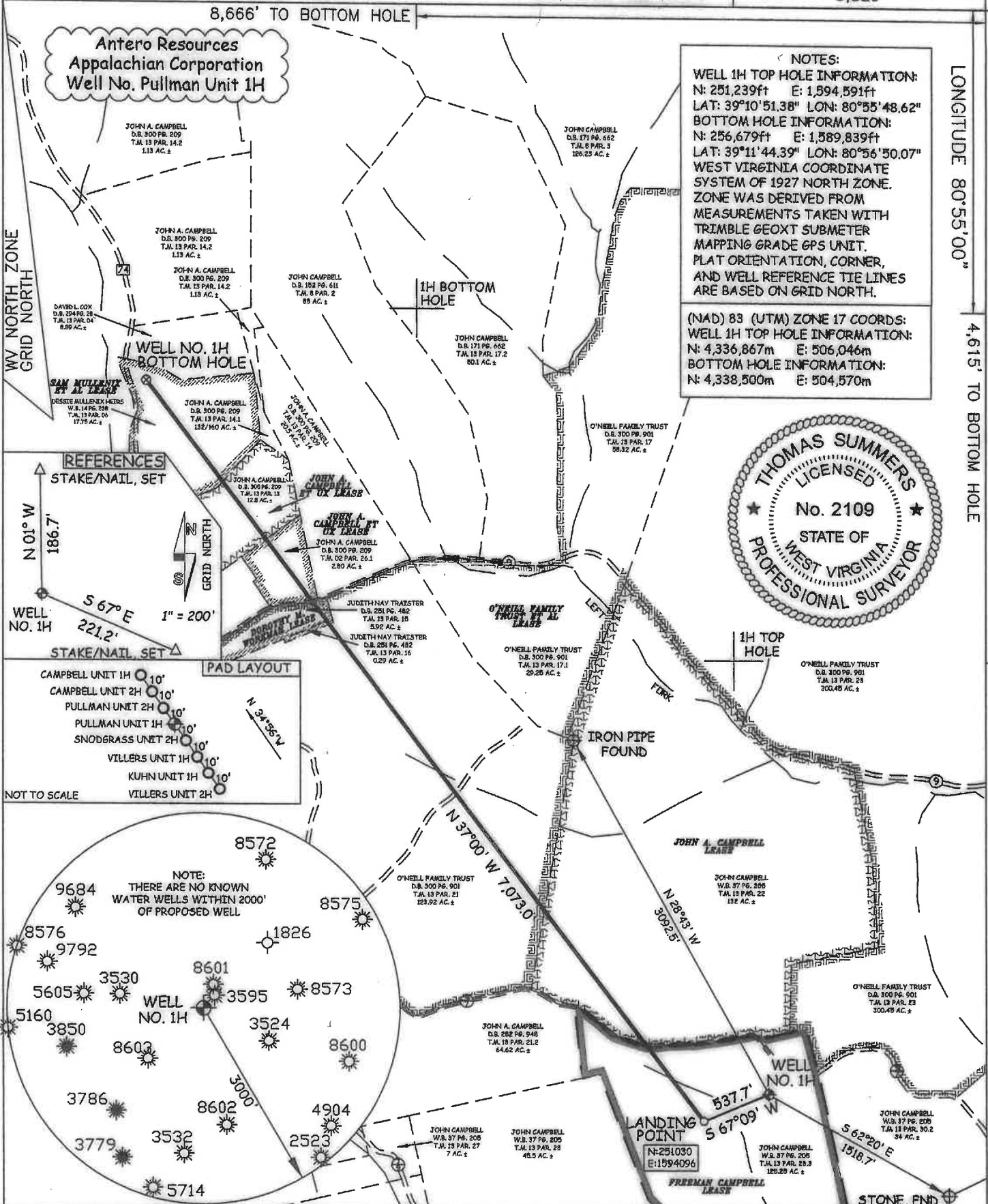
LATITUDE 39°12'30"

3,829'

LONGITUDE 80°55'00"

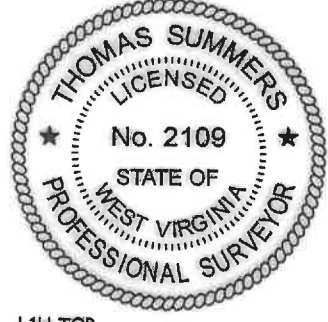
9,978'

4,615' TO BOTTOM HOLE

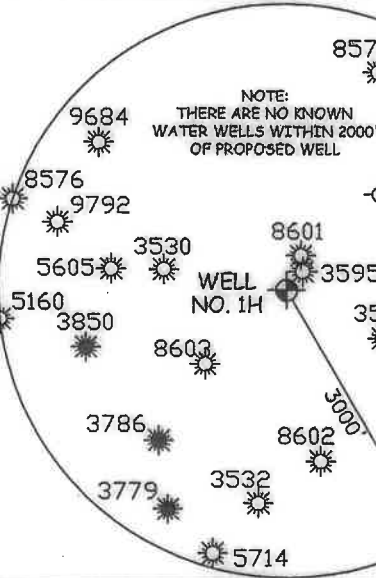
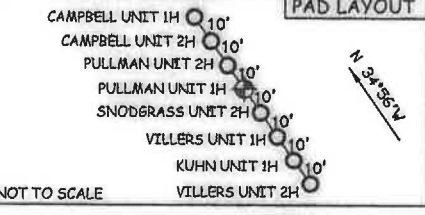


NOTES:  
 WELL 1H TOP HOLE INFORMATION:  
 N: 251,239ft E: 1,594,591ft  
 LAT: 39°10'51.38" LON: 80°55'48.62"  
 BOTTOM HOLE INFORMATION:  
 N: 256,679ft E: 1,589,839ft  
 LAT: 39°11'44.39" LON: 80°56'50.07"  
 WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

(NAD) 83 (UTM) ZONE 17 COORDS:  
 WELL 1H TOP HOLE INFORMATION:  
 N: 4,336,867m E: 506,046m  
 BOTTOM HOLE INFORMATION:  
 N: 4,338,500m E: 504,570m



REFERENCES  
 STAKE/NAIL, SET  
 N 01° W 186.7'  
 S 67° E 221.2'  
 1" = 200'



JOB # 12-042  
 DRAWING # PULLMANUNIT1HR1  
 SCALE 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY SUBMETER  
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

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 REGULATIONS ISSUED AND PERSCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS

WILLOW LAND SURVEYING PLLC  
 266 HUSHERS RUN RD PENNSBORO WEST VIRGINIA 26415

LEGEND  
 --- Surface Owner Boundary Lines +/-  
 - - - Interior Surface Tracts +/-  
 X Existing Fence  
 ⊕ Found monument, as noted

THOMAS SUMMERS P.S. 2109

DATE 02/20/13  
 OPERATOR'S WELL # PULLMAN UNIT #1H

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS  
 WELL TYPE: OIL \_\_\_ GAS  LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_  
 (IF "GAS") PRODUCTION  STORAGE \_\_\_ DEEP \_\_\_ SHALLOW   
 LOCATION: ELEVATION 1,014' WATERSHED LEFT FORK  
 QUADRANGLE PULLMAN 7.5' DISTRICT UNION COUNTY RITCHIE

API WELL # 47 - 085 - 09981 MOD  
 STATE COUNTY PERMIT

SURFACE OWNER JOHN A. & LINDA J. CAMPBELL ACREAGE 120.25 ACRES +/- 05/31/2024  
 OIL & GAS ROYALTY OWNER FREEMAN CAMPBELL (KEY 25): LEASE ACREAGE 58 ACRES +/-  
 JOHN A. CAMPBELL (ARAC); O'NEILL FAMILY TRUST ET AL.; DOROTHY M. WORKMAN; JOHN A. CAMPBELL ET UX; JOHN A. CAMPBELL ET UX; SAM MULLEN ET AL. 132 AC +/-; 517.83 AC +/-; 2.80 AC +/-; 12.8 AC +/-; 17.6 +/-  
 PROPOSED WORK: DRILL  CONVERT \_\_\_ DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR STIMULATE   
 PLUG OFF OLD FORMATION \_\_\_ PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL  
 (SPECIFY) Permit Modification - Extend Lateral Borehole PLUG & ABANDON CLEAN OUT & REPLUG  
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,800' TVD 14,000' MD  
 WELL OPERATOR ANTERO RESOURCES APPALACHIAN CORP. DESIGNATED AGENT DIANNA STAMPER  
 ADDRESS 1625 17TH STREET ADDRESS 5400 D BIG TYLER ROAD  
 CT CORPORATION SYSTEM  
 DENVER, CO 80202 CHARLESTON, WV 25313

COUNTY NAME PERMIT

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><u>Freeman Campbell Lease</u></b>			
Freeman Campbell, et ux	Key Oil Company	1/8	LB 0227/0243
Key Oil Company	Antero Resources Appalachian Corp.	*Partial Assignment of Oil and gas Leases	LB 0253/0747
<b><u>John A. Campbell Lease</u></b>			
John A. Campbell & Linda J. Campbell, his wife	Antero Resources Appalachian Corp.	15.00%	0254/0379
<b><u>O'Neill Family Trust et al Lease</u></b>			
Robert E. O'Neil	Key Oil Company	1/8	LB 0224/0433
Anna L. Lockhart, Individually & as Trustee of O. Glenn Lockhart Estate	Key Oil Company	1/8	LB 0224/0437
Betty J. O'Neill	Key Oil Company	1/8	LB 0233/0239
Nancy Antill & Mary Francis Harms	Key Oil Company	1/8	LB 0233/0244
Nancy Antill & Mary Francis Harms	Key Oil Company	1/8	LB 0241/0967
Mary Francis Harms	Key Oil Company	1/8	LB 0243/0810
Daniel J. O'Neill, Trustee for the O'Neill Family Trust et al	Key Oil Company	1/8	LB 0252/1053
Sharon S. O'Neill	Key Oil Company	1/8	LB 0252/1056
Kathleen R. Hooven	Key Oil Company	12.50%	LB 0252/1075
Mary F. Harms	Key Oil Company	12.50%	LB 0252/1078
Romarolo, LLC, et al	Key Oil Company	12.50%	LB 0252/1081
Nancy I. Antill	Key Oil Company	12.50%	LB 0252/1083
Daniel J. O'Neill, Trustee, et al	Key Oil Company	12.50%	LB 0252/1086
Clifton G. Valentine & Erma Valentine	Key Oil Company	12.50%	LB 0224/0663
Key Oil Company	Antero Resources Appalachian Corp.	Partial Assignment of Oil and gas Leases	LB 0253/0747
<b><u>Dorothy M. Workman Lease</u></b>			
Dorothy Marie Workman	Antero Resources Appalachian Corp.	15.00%	0258/0309
<b><u>John A. Campbell et ux Lease</u></b>			
John A. Campbell, et ux	Antero Resources Appalachian Corp.	15.00%	0260/0529
<b><u>John A. Campbell et ux Lease</u></b>			
John A. Campbell, et ux	Antero Resources Appalachian Corp.	15.00%	0259/0080

**RECEIVED**  
 Office of Oil and Gas  
 FEB 25 2013  
 WV Department of  
 Environmental Protection

**(CONTINUED ON NEXT PAGE)**



**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>Sam Mullenix et al Lease</b> Sam Mullenix, etal W.R. Development Company	W.R. Development Company, Inc. Antero Resources Appalachian Corporation	1/8 *Partial Assignment of Oil & Gas Leases	0259/0097 0259/0888

\*Partial Assignments to Antero Resources Appalachian 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 Appalachian Corporation  
 By: Ward McNeilly  
 Its: Vice President of Engineering

RECEIVED  
Office of Oil and Gas  
FEB 25 2013  
WV Department of  
Environmental Protection



June 28, 2012

Antero Resources  
1625 17th Street  
Denver, Colorado 80202  
Office 303.357.7310  
Fax 303.357.7315

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

85-9981

RE: Pullman Unit 1H  
Quadrangle: Pullman 7.5'  
Ritchie County/Union District, West Virginia

Mr. Martin:

Antero Resources Appalachian Corporation (Antero) is submitting the following application for a new well work permit for the Pullman Unit 1H horizontal shallow well. As an authorized representative, I certify that Antero has the right to extract, produce or market the oil or gas for all leases through which the Pullman Unit 1H horizontal lateral will drill through including any and all roads crossed under as identified on the attached survey plat.

Sincerely,



Houston Eagleston  
Landman

JUL 10 2012

05/31/2024



**STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
NOTICE CERTIFICATION**

Date of Notice Certification: 06/29/2012

API No. 47- 085 -  
Operator's Well No. Pullman Unit 1H  
Well Pad Name: John Campbell North Pad

**Notice has been given:**

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State: <u>West Virginia</u>	UTM NAD 83	Easting: <u>506046m</u>
County: <u>Ritchie</u>		Northing: <u>4336867m</u>
District: <u>Union</u>	Public Road Access: <u>CR 9/7</u>	
Quadrangle: <u>Pullman 7.5'</u>	Generally used farm name: <u>Campbell, John</u>	
Watershed: <u>Left Fork</u>		

Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (i) it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section ten of this article, the information required by subsections (b) and (c), section sixteen of this article; (ii) that the requirement was deemed satisfied as a result of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-a; or (iii) the notice requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to West Virginia Code § 22-6A-11(b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section ten of this article have been completed by the applicant.

<p>Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED <small>**Not applicable, Plat Survey was done prior to Implementation of WV Code 22-6A</small></p> <p><input checked="" type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p style="padding-left: 40px;"><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p><b>OOG OFFICE USE ONLY</b></p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p>
---	---

**Required Attachments:**

The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been noticed as required under West Virginia Code § 22-6A. Pursuant to West Virginia Code § 22-6A-11(b), the Certification of Notice to the person may be made by affidavit of personal service, the return receipt card or other postal receipt for certified mailing.

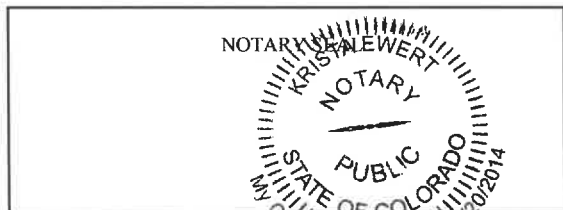
JUL 10 2012

05/31/2024

**Certification of Notice is hereby given:**

THEREFORE, I Kevin Kilstrom, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification and all attachments, 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 and imprisonment.

Well Operator:	<u>Antero Resources Appalachian Corporation</u>	Address:	<u>1625 17th Street</u>
By:	<u>Kevin Kilstrom</u>		<u>Denver, CO 80202</u>
Its:	<u>Vice President of Production</u>	Facsimile:	<u>(303) 357-7315</u>
Telephone:	<u>(303) 357-7310</u>	Email:	<u></u>



Subscribed and sworn before me this 29<sup>th</sup> day of June, 2012.

Krista Lewert Notary Public

My Commission Expires 07/20/2014

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as 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 or your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).

JUL 10 2012

05/31/2024

**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
**NOTICE OF APPLICATION**

**Notice Time Requirement:** notice shall be provided no later than the **filing date of permit application.**

**Date of Notice:** 06/29/2012 **Date Permit Application Filed:** 06/29/2012

**Notice of:**

- PERMIT FOR ANY WELL WORK       CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

**Delivery method pursuant to West Virginia Code § 22-6A-10(b)**

- PERSONAL SERVICE       REGISTERED MAIL       METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to W. Va. Code § 22-6A-10(b), no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner.

**Notice is hereby provided to:**

- SURFACE OWNER(s)  
Name: John A. and Linda J. Campbell  
Address: 505 Oxford Road  
Pullman, WV 26421  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_
- SURFACE OWNER(s) (Road and/or Other Disturbance)  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_
- SURFACE OWNER(s) (Impoundments/Pits)  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

- COAL OWNER OR LESSEE  
Name: PLEASE SEE ATTACHMENT  
Address: \_\_\_\_\_
- COAL OPERATOR  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_
- WATER PURVEYOR(s)/OWNER(s) OF WATER WELL,  
 SPRING OR OTHER WATER SUPPLY SOURCE  
Name: NONE IDENTIFIED WITHIN 2000'  
Address: \_\_\_\_\_
- OPERATOR OF ANY NATURAL GAS STORAGE FIELD  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

\*Please attach additional forms if necessary

JUL 10 2012

05/31/2024

**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-10(b), notice is hereby given that the undersigned well operator has applied for a permit for well work or for a certificate of approval for the construction of an impoundment or pit.

**This Notice Shall Include:**

Pursuant to W. Va. Code § 22-6A-10(b), this notice shall include: (1) copies of the application; (2) the erosion and sediment control plan required by section seven of this article; and (3) the well plat.

Pursuant to W. Va. Code § 22-6A-10(f), this notice shall also include: (1) a statement of the time limits for filing written comments; (2) who may file written comments; (3) the name and address of the secretary for the purpose of filing the comments and obtaining additional information; and (4) a statement that the persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Water Well Testing:**

Pursuant to West Virginia Code § 22-6A-10(d), notification shall be made, with respect to surface landowners identified in subsection (b) or water purveyors identified in subdivision (5), subsection (b) of this section, of the opportunity for testing their water well.

**Water Testing Laboratories:**

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments.

**Well Location Restrictions**

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No wellpad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such

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factors, if necessary.

**Written Comment:**

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary at:

Chief, Office of Oil and Gas  
Department of Environmental Protection  
601 57<sup>th</sup> St. SE  
Charleston, WV 25304  
(304) 926-0450

Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water. **NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.**

**Time Limits and Methods for Filing Comments.**

The law requires these materials to be served on or before the date the operator files its Application. You have **THIRTY (30) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Pursuant to West Virginia Code § 22-6A-11(c)(2), Any objections of the affected coal operators and coal seam owners and lessees shall be addressed through the processes and procedures that exist under sections fifteen, seventeen and forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article. The written comments filed by the parties entitled to notice under subdivisions (1), (2), (4), (5) and (6), subsection (b), section ten of this article shall be considered by the secretary in the permit issuance process, but the parties are not entitled to participate in the processes and proceedings that exist under sections fifteen, seventeen or forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article.

**Comment Requirements**

Your comments must be in writing and include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

Disclaimer: All comments received will be placed on our web site <http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx> and the applicant will automatically be forwarded an email notice that such comments have been submitted. The applicant will be expected to provide a response to comments submitted by any surface owner, water purveyor or natural gas storage operator noticed within the application.

**Permit Denial or Condition**

The Chief has the power to deny or condition a well work permit. Pursuant to West Virginia Code § 22-6A-8(d), the permit may not be issued or be conditioned, including conditions with respect to the location of the well and access roads prior to issuance if the director determines that:

- (1) The proposed well work will constitute a hazard to the safety of persons;
- (2) The plan for soil erosion and sediment control is not adequate or effective;
- (3) Damage would occur to publicly owned lands or resources; or
- (4) The proposed well work fails to protect fresh water sources or supplies.

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A permit may also be denied under West Virginia Code § 22-6A-7(k), the secretary shall deny the issuance of a permit if the secretary determines that the applicant has committed a substantial violation of a previously issued permit for a horizontal well, including the applicable erosion and sediment control plan associated with the previously issued permit, or a substantial violation of one or more of the rules promulgated under this article, and in each instance has failed to abate or seek review of the violation within the time prescribed by the secretary pursuant to the provisions of subdivisions (1) and (2), subsection (a), section five of this article and the rules promulgated hereunder, which time may not be unreasonable.

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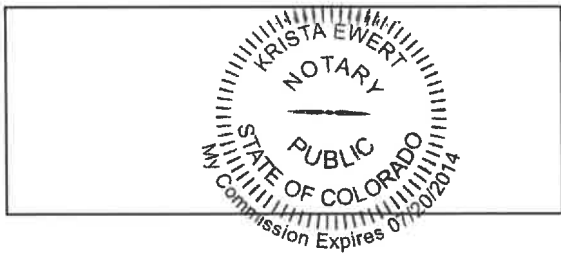
Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the permit if the person requests receipt of them as a part of the written comments submitted concerning the permit application. Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

**Notice is hereby given by:**

Well Operator: Antero Resources Appalachian Corporation Address: 1625 17th Street  
Telephone: 303-357-7310 [Signature] Denver, CO 80202  
Email: amihalcin@anteroresources.com Facsimile: 303-358-7315

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as 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 or your personal information, please contact DEP's Chief Privacy Officer at [deprivacyofficer@wv.gov](mailto:deprivacyofficer@wv.gov).



Subscribed and sworn before me this 29<sup>th</sup> day of June, 2012.  
[Signature] Notary Public  
My Commission Expires 07/20/2014

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## WW-6A Notice of Application Attachment:

### Coal Owners:

**Owner:** John A. & Linda J. Campbell ✓  
**Address:** 505 Oxford Road  
Pullman, WV 26421

**Owner:** Ruth Villers ✓  
**Address:** 520 Park Drive  
Pennsboro, WV 26415

**Owner:** Naomi P. Federkiel ✓  
**Address:** 18 Olive Street  
Norwalk, OH 44857

**Owner:** J.W. Prunty c/o Ruth Villers ✓  
**Address:** 520 Park Drive  
Pennsboro, WV 26415

**Owner:** Kermit Comoway, Pearl Cunningham &  
Thya Neusbaum, heirs ✓  
c/o Melinda Gilbertson  
**Address:** 900 Par Lane  
Dell Rapids, SD 57022

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**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
**NOTICE OF INTENT TO DRILL**

Pursuant to W. Va. Code § 22-6A-16(b), the Notice of Intent to Drill is only required if the notice requirements of W. Va. Code § 22-6A-10(a) have NOT been met or if the Notice of Intent to Drill requirement has NOT been waived in writing by the surface owner.

**Notice Time Requirement:** Notice shall be provided at least **TEN (10)** days prior to filing a permit application.

**Date of Notice:** 04/30/2012      **Date Permit Application Filed:** 06/29/2012

**Delivery method pursuant to West Virginia Code § 22-6A-16(b)**

- HAND DELIVERY       CERTIFIED MAIL RETURN RECEIPT REQUESTED

Pursuant to W. Va. Code § 22-6A-16(b), at least ten days prior to filing a permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner notice of its intent to enter upon the surface owner's land for the purpose of drilling a horizontal well: *Provided*, That notice given pursuant to subsection (a), section ten of this article satisfies the requirements of this subsection as of the date the notice was provided to the surface owner: *Provided, however*, That the notice requirements of this subsection may be waived in writing by the surface owner. The notice, if required, shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative.

**Notice is hereby provided to the SURFACE OWNER(s):**

Name: John A. & Linda J. Campbell  
Address: 505 Oxford Road  
Pullman, WV 26421

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-16(b), notice is hereby given that the undersigned well operator has an intent to enter upon the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>506046m</u>
County:	<u>Ritchie</u>		Northing:	<u>4336867m</u>
District:	<u>Union</u>	Public Road Access:		<u>CR 9/7</u>
Quadrangle:	<u>Pullman 7.5'</u>	Generally used farm name:		<u>Campbell, John</u>
Watershed:	<u>Left Fork</u>			

**This Notice Shall Include:**

Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Notice is hereby given by:**

Well Operator: Antero Resources Appalachian Corporation  
Address: 1625 17th Street  
Denver, CO 80202  
Telephone: (303) 357-7310  
Email: hknopping@anteroresources.com  
Facsimile: (303) 357-7315

Authorized Representative: Hannah Knopping  
Address: 1625 17th Street  
Denver, CO 80202  
Telephone: (303) 357-6412  
Email: hknopping@anteroresources.com  
Facsimile: (303) 357-7315

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as 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 or your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).

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**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
**NOTICE OF PLANNED OPERATION**

**Notice Time Requirement:** notice shall be provided no later than the **filing date of permit application.**

**Date of Notice:** 06/29/2012      **Date Permit Application Filed:** 06/29/2012

**Delivery method pursuant to West Virginia Code § 22-6A-16(c)**

- CERTIFIED MAIL                                       HAND  
RETURN RECEIPT REQUESTED                                      DELIVERY

Pursuant to W. Va. Code § 22-6A-16(c), no later than the date for filing the permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner whose land will be used for the drilling of a horizontal well notice of the planned operation. The notice required by this subsection shall include: (1) A copy of this code section; (2) The information required to be provided by subsection (b), section ten of this article to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. (d) The notices required by this section shall be given to the surface owner at the address listed in the records of the sheriff at the time of notice.

**Notice is hereby provided to the SURFACE OWNER(s)**

(at the address listed in the records of the sheriff at the time of notice):

Name: John A. & Linda J. Campbell  
Address: 505 Oxford Road  
Pullman, WV 26421

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-16(c), notice is hereby given that the undersigned well operator has developed a planned operation on the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>506046m</u>
County:	<u>Ritchie</u>		Northing:	<u>4336867m</u>
District:	<u>Union</u>	Public Road Access:		<u>CR 9/7</u>
Quadrangle:	<u>Pullman 7.5'</u>	Generally used farm name:		<u>Campbell, John</u>
Watershed:	<u>Left Fork</u>			

**This Notice Shall Include:**

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by **W. Va. Code § 22-6A-10(b)** to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

Well Operator: Antero Resources Appalachian Corporation  
Telephone: (303) 357-7310  
Email: amihalcin@anteroresources.com

Address: 1625 17th Street  
Denver, CO 80202  
Facsimile: (303) 357-7315

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as 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 or your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).

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**CERTIFICATION OF AGREEMENT WITH WVDOH  
to fulfill WV Code 22, Article 6A, Section 20**

**OIL AND GAS ROAD  
STATEWIDE BONDING AGREEMENT**

THIS AGREEMENT, executed in duplicate, made and entered into this 28 day of February, 2012, by and between the WEST VIRGINIA DEPARTMENT OF TRANSPORTATION, DIVISION OF HIGHWAYS, hereinafter called "DEPARTMENT," and Antero Resources Appalachian Corporation, a DELAWARE company, hereinafter called "COMPANY."

**WITNESSETH:**

WHEREAS, Company has horizontal gas well drilling operations in certain areas of West Virginia; and

WHEREAS, the Department believes that the frequent and repetitive use of certain sections of highways in the State by Company, its contractors, agents, independent contractors or suppliers of drilling materials or drilling equipment, and employees contributes to increased wear and tear to public roads in the state road system in the State, including local roads ("State Owned Roads"); and,

WHEREAS, the Department and Company have entered into this Agreement to satisfy the requirements of the Department's policy entitled "Oil & Gas Road Policy" dated January 3, 2012, as issued by Paul A. Mattox, Jr., Secretary of Transportation / Commissioner of Highways, and any subsequent related policies, hereinafter called "Policy", a copy of which is made a part of this Bonding Agreement and is identified as Attachment 1.

NOW, THEREFORE, for and in consideration of the mutual agreements hereinafter set forth, the parties agree as follows:

I. For purposes of this Bonding Agreement, "Project Transportation Usage" of the Company shall be understood to mean use of one or more State Owned Roads for the delivery and removal of drilling materials and drilling equipment at the site or location of one or more of Company's horizontal gas well pad locations. To the extent reasonably practical, prior to commencing use of a State Owned Road for Project Transportation Usage after January 1, 2011, the Company shall submit to the Department a section or sections of current official WVDOH County Highway maps identifying the exact location of the proposed project and the State Owned Roads that the Company will utilize for the Project Transportation Usage.

II. Company and Department shall within 14 days of the Company's submittal, agree to a list of these sections of State Owned Roads, hereinafter called "Project Roads List", to be utilized for each of Company's projects, identified by route number and milepost; at a time to be mutually agreed to by the parties prior to initial commencement of Project Transportation Usage of a particular State Owned Road on a Project Roads List, the Company and Department will jointly review the condition of the roads and bridges on the Project Roads List. The Department will document the road type and surface condition and general right-of-way width of each section of road on the Project Road List. Either party may supplement this documentation with photographs, video or other evidence of the present condition of the road surface, shoulders, ditches, culverts, bridges or other structures or appurtenances of roads on the Project Road List, as well as approaches to the roads, utility facilities located within or along the right-of-way, or any other condition, including third-party activities, that may affect the duties and responsibilities of the parties under this Agreement. A copy of any such documentation must be made and provided to the other party within ten business days after the joint review of the roads on the Project Roads List.

III. Department shall issue a Project Agreement or Project Permit, as appropriate, to Company to use State Owned Roads and may include any minor or major improvements required of Company prior to, during or after Project with the assignment of responsibilities of

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both parties prior to, during and after the operator has completed well fracturing..

IV. In the Project Agreement/Project Permit, the Department shall not require the use of State Owned Roads other than the roads proposed by Company unless the Department has safety concerns as to the Company's proposed roads. A failure to agree on roads that may otherwise be lawfully used for a particular Project Transportation Usage shall result in the designation of the State Owned Roads proposed by Company, with milepost determinations as designated by Department. This Agreement shall only cover portions of State Owned Roads designated on the Project Roads List.

V. For the duration of Company's Project Transportation Usage of the Stated Owned Roads on the Project Roads List, whether by the Company, its contractors (while working on behalf of Company), agents, independent contractors or suppliers of drilling materials or drilling equipment, or employees, the Company agrees to pay for all reasonable maintenance and repair costs incurred by the Department to repair areas of the State Owned Roads included in the Project Roads List that were directly damaged by Company's Project Transportation Usage, as determined to be reasonably necessary and appropriate by the Department. The Department shall keep a record of all labor performed by Department employees and contractors for such maintenance and repairs and shall send an invoice for the same to Company.

VI. Company shall be responsible for the cost of all maintenance and repairs reasonably necessary to put the existing roadways, bridges and appurtenances on the Project Roads List utilized for the Project Transportation Usage in the condition that existed immediately prior to the Project Transportation Usage. Company shall not be required to pay for maintenance or repairs to put any areas of such roadways, bridges and appurtenances on the Project Roads List in a condition better than the condition that existed immediately prior to the Project Transportation Usage. Company shall also not be required to pay for maintenance or repairs to any areas of these roadways, bridges or appurtenances on the Project Roads List that are not actually utilized for the Project Transportation Usage or for damage not caused by Project Transportation Usage.

VII. Company shall notify the Department in writing of Company's final completion of Project Transportation Usage for particular roadways, bridges and appurtenances on the Project Roads List. Within fourteen days after its receipt of written notification of the completion of the Project Transportation Usage for all roads on a Project Roads List, the Department will review the condition of the roadways, bridges and appurtenances on the Project Roads List actually utilized for the Project Transportation Usage and advise Company of any final repairs reasonably necessary to leave these roads, bridges and appurtenances in a condition reasonably deemed by Department to be equal to their condition prior to commencement of Project Transportation Usage; and, upon completion of all such final repairs by or on behalf of Company and acceptance by Department, the Company shall be released from all further liability for maintenance or repairs to roads, bridges, or appurtenances on said Project Roads List. Any maintenance or repair work under the Project Agreement/Project Permit for roads, bridges or appurtenances on the Project Roads List may be performed by a contractor directly chosen by the Company as approved by the Department, the Department's workforce, or a private contractor hired by the Department through the public bid process in accordance with state law, all of which work shall be subject to the standards and specifications of the Department.

VIII. In order to ensure performance of Company's performance and payment obligations under this Bonding Agreement, the Company shall post a corporate surety bond, hereinafter called "Master Bond", with the Department named as the beneficiary, which form of bond shall be subject to the consent of the Department, not to be unreasonably withheld. The amount and form of the bond shall be in accordance with the Policy as set forth above. However, the amount of the Master Bond does not limit the amount of claims that may be made by the Department against the Company under this Bonding Agreement. The Company shall provide the Master Bond to the Department within one (1) month after the execution of this Bonding Agreement. The Master Bond shall secure the good faith performance of all payment obligations of Company under the terms of this Bonding Agreement respecting the roads, bridges and appurtenances on the Project Roads List for each Project Transportation Usage undertaken by the Company, and shall remain in effect until termination of this Agreement. Company shall not be obligated to provide any other bonds, sureties, or other guarantees of performance to the Department for Company's use of State Owned Roads, except as required in this Agreement.

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**IX.** Company shall maintain Commercial General Liability Insurance in the amount of two million dollars, with a minimum coverage of one million dollars per occurrence, for personal injury or death to persons, or for property damage, resulting from Company's Project Transportation Usage and shall present evidence of such insurance to Department upon request.

**X.** Company's usage of State Owned Roads under the Project Agreement/Project Permit shall comply with all applicable Federal, State and local laws and regulations including, but not limited to, to the extent applicable, the National Environmental Policy Act, Section 404 of the Clean Water Act, Section 106 of the National Historic Preservation Act, Rare, Threatened and Endangered Species Act, Section 401 Water Quality Certification, and hazardous waste requirements. Further, upon reasonable written request of Department, Company shall furnish Department with acceptable documentation of such compliance which is in the possession of the Company.

**XI.** Company shall defend, indemnify and hold Department harmless from and against any and all losses, damage, and liability, and from all claims for damages on account of or by reason of bodily injury, including death, which may be sustained, or claimed to be sustained, by any person or persons, including employees of Department, and from and against any and all claims, losses or liabilities for damages to property, arising out of the negligent or willful acts or omissions of Company, its agents, independent contractors and suppliers of drilling materials or drilling equipment, employees and contractors, in the performance of all Project Transportation Usage activities undertaken pursuant to this Agreement (collectively, "claims"). The Company shall not be responsible to indemnify, defend or hold harmless Department for any claims caused by the negligent or willful acts or omissions of the Department or its agents, employees and contractors or third parties not performing work at the direction of Company or delivering drilling equipment or drilling materials, including water, for use by or for company.

**XII.** If a provision of this Agreement is or becomes illegal, invalid or unenforceable in any jurisdiction, that shall not affect the validity or enforceability of any other provision of this Agreement; or the validity or enforceability in other jurisdictions of that or any other provision of this Agreement.

**XIII.** Department shall give Company a minimum of thirty days written notice of default under the terms of this Bonding Agreement and the opportunity to cure this default during such thirty-day period. If a default is not cured to the satisfaction of Department, or provision acceptable to Department is not made for a cure, Department may then elect to terminate this Bonding Agreement in whole or in part, and may in addition exercise its rights under the Master Bond or seek any other lawful relief available. Company may terminate this Bonding Agreement upon thirty days written notice to Department for any reason. In the event Company terminates this Agreement for any reason, it shall be liable for the repair and maintenance costs set forth above for prior Project Transportation Usage.

**XIV.** Nothing herein shall be construed to mean that Company shall have any jurisdiction or control over any public roads in the state road system.

**XV.** Company, its contractors, agents, employees and suppliers shall at all times be subject to applicable provisions of state and federal law, including without limitation laws requiring operation of vehicles in accordance with legal size and weight restrictions and posted weight limits. Oversize/overweight permits for vehicle or loads not otherwise conforming with law must be obtained in accordance with law; Department agrees to work in good faith with Company to review and grant (where authorized by law) such permits in a timely manner upon request by Company.

**XVI.** This Bonding Agreement shall be construed and enforced in accordance with the laws of the State of West Virginia, as they may be amended.

**XVII.** This Bonding Agreement shall be binding upon the successors and assigns of each party hereto.

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IN WITNESS WHEREOF, the parties hereto have caused this Bonding Agreement to be executed by their duly authorized officers effective as of the date first above written.

WEST VIRGINIA DEPARTMENT OF  
TRANSPORTATION,  
DIVISION OF HIGHWAYS

Doreen Baria  
Witness

By: Marina Murphy  
State Highway Engineer

AUSTIN RESOURCES APPALACHIAN CORPORATION

Rachel Bouchard  
Witness

By: A. Schopp  
Title: VP ACCOUNTING AND ADMINISTRATION

(To be executed in duplicate)

APPROVED AS TO FORM THIS  
8<sup>th</sup> DAY OF March, 2012

[Signature]  
ATTORNEY LEGAL DIVISION  
WEST VIRGINIA DEPARTMENT  
OF HIGHWAYS

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## ***Form WW-9 Additives Attachment***

### **SURFACE INTERVAL**

1. Fresh Water
2. Soap –Foamer AC
3. Air

### **INTERMEDIATE INTERVAL**

#### ***STIFF FOAM RECIPE:***

- 1) 1 ppb Soda Ash / Sodium Carbonate-Alkalinity Control Agent
- 2) 1 ppb Conqor 404 ( 11.76 ppg) / Corrosion Inhibitor
- 3) 4 ppb KLA-Gard ( 9.17 ppg) / Amine Acid Complex-Shale Stabilizer
- 4) 1ppb Mil Pac R / Sodium Carboxymethylcellulose-Filtration Control Agent
- 5) 12 ppb KCL / Potassium Chloride-inorganic Salt
- 6) Fresh Water 80 bbls
- 7) Air

### **PRODUCTION INTERVAL**

1. Alpha 1655  
Salt Inhibitor
2. Mil-Carb  
Calcium Carbonate
3. Cottonseed Hulls  
Cellulose-Cottonseed Pellets – LCM
4. Mil-Seal  
Vegetable, Cotton & Cellulose-Based Fiber Blend – LCM
5. Clay-Trol  
Amine Acid Complex – Shale Stabilizer
6. Xan-Plex  
Viscosifier For Water Based Muds
7. Mil-Pac (All Grades)  
Sodium Carboxymethylcellulose – Filtration Control Agent
8. New Drill  
Anionic Polyacrylamide Copolymer Emulsion – Shale Stabilizer
9. Caustic Soda  
Sodium Hydroxide – Alkalinity Control
10. Mil-Lime  
Calcium Hydroxide – Lime
11. LD-9  
Polyether Polyol – Drilling Fluid Defoamer
12. Mil Mica  
Hydro-Biotite Mica – LCM

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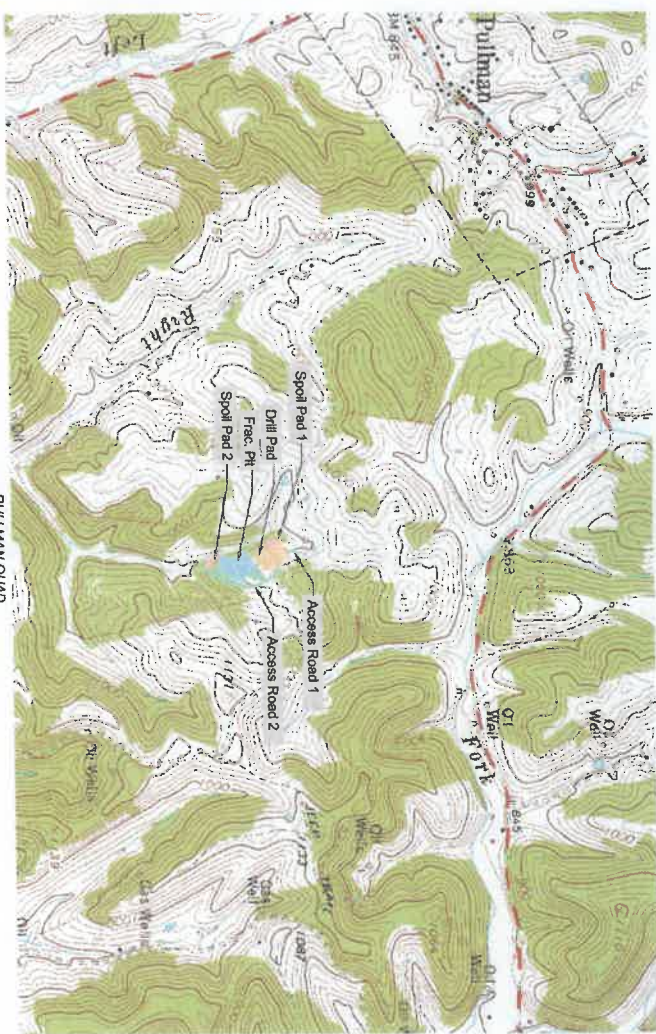
13. Escaid 110  
Drilling Fluid Solvent – Aliphatic Hydrocarbon
14. Ligco  
Highly Oxidized Leonardite – Filtration Control Agent
15. Super Sweep  
Polypropylene – Hole Cleaning Agent
16. Sulfatrol K  
Drilling Fluid Additive – Sulfonated Asphalt Residuum
17. Sodium Chloride, Anhydrous  
Inorganic Salt
18. D-D  
Drilling Detergent – Surfactant
19. Terra-Rate  
Organic Surfactant Blend
20. W.O. Defoam  
Alcohol-Based Defoamer
21. Perma-Lose HT  
Fluid Loss Reducer For Water-Based Muds
22. Xan-Plex D  
Polysaccharide Polymer – Drilling Fluid Viscosifier
23. Walnut Shells  
Ground Cellulosic Material – Ground Walnut Shells – LCM
24. Mil-Graphite  
Natural Graphite – LCM
25. Mil Bar  
Barite – Weighting Agent
26. X-Cide 102  
Biocide
27. Soda Ash  
Sodium Carbonate – Alkalinity Control Agent
28. Clay Trol  
Amine Acid complex – Shale Stabilizer
29. Sulfatrol  
Sulfonated Asphalt – Shale Control Additive
30. Xanvis  
Viscosifier For Water-Based Muds
31. Milstarch  
Starch – Fluid Loss Reducer For Water Based Muds
32. Mil-Lube  
Drilling Fluid Lubricant

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05/31/2024



# JOHN CAMPBELL NORTH DRILL PAD FINAL SITE DESIGN, CONSTRUCTION PLAN, & EROSION & SEDIMENT CONTROL PLANS ANTERO RESOURCES APPALACHIAN CORPORATION



West Virginia Coordinate System of 1983  
Site Plane Gnd North  
Elevations NAVD83  
Established by Survey Grade GPS

**AFFECTED TAX PARCELS: 13228.3**  
UNION DISTRICT  
TM 13 - PCL 28 John Campbell  
WB 57202 120.25 Acres  
(Affected area from Proposed Access Road = 2.32 Acres)  
(Affected area from Proposed Drill Pad = 2.32 Acres)  
(Affected area from Proposed Frac Pit = 3.05 Acres)  
(Affected area from Proposed Spoil Piles = 1.67 Acres)

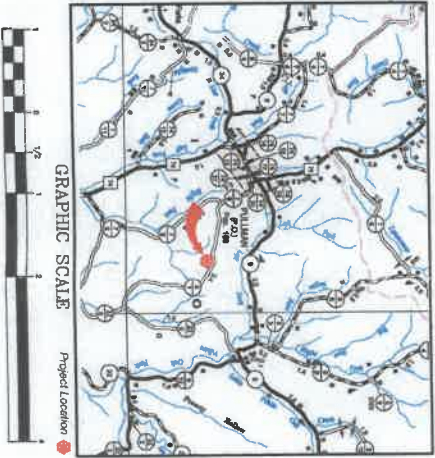
Well Table					
Prop Well Capped Ltd 24 WVA-NAD83 E: 16551520 WVA-NAD83 N: 30709187 LAT WADCS: 30709187 LON WADCS: 80559182	Prop Well Capped Ltd 24 WVA-NAD83 E: 16551520 WVA-NAD83 N: 30709187 LAT WADCS: 30709187 LON WADCS: 80559182	Prop Well Vitrinite Ltd 24 WVA-NAD83 E: 16551710 WVA-NAD83 N: 30709187 LAT WADCS: 30709187 LON WADCS: 80559182	Prop Well Vitrinite Ltd 14 WVA-NAD83 E: 16551587 WVA-NAD83 N: 30709187 LAT WADCS: 30709187 LON WADCS: 80559182	Prop Well Vitrinite Ltd 14 WVA-NAD83 E: 16551587 WVA-NAD83 N: 30709187 LAT WADCS: 30709187 LON WADCS: 80559182	Prop Well Vitrinite Ltd 14 WVA-NAD83 E: 16551587 WVA-NAD83 N: 30709187 LAT WADCS: 30709187 LON WADCS: 80559182

### Well Location Restrictions:

- All Pad and Fracture Pit limits comply with the following restrictions:
- 250' from an existing well or developed spring used for human or domestic animals.
- 625' occupied dwelling or barn greater 2500 SF used for poultry or dairy measured from the center of the pad.
- 100' from edge of disturbance to wetlands, perennial streams, natural or artificial lake, pond or reservoir.
- 300' from edge of disturbance to naturally reproducing trout streams.
- 100' of surface or ground water intake to a public water supply.

**APPROVED  
WV DEP OOG**  
9/24/12 7/25/12

FLOODPLAIN CONDITIONS	
DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN FLOODPLAIN:	NO
PERMIT NEEDED FROM COUNTY FLOODPLAIN COORDINATOR:	NO
HEC-RAS STUDY COMPLETED:	N/A
FLOODPLAIN SHOWN ON DRAWINGS:	N/A
FIRM MAP NUMBER(S) FOR SITE:	54085C0225C
ACREAGE OF CONSTRUCTION IN FLOODPLAIN:	N/A



SHEET INDEX	
1	COVER SHEET / LOCATION MAP
2	SCHEDULE OF QUANTITIES
3	EXISTING CONDITIONS PLAN
4	CONSTRUCTION, GENERAL AND E&S NOTES
5	EROSION & SEDIMENT CONTROL PLAN
6	FINAL SITE DESIGN
7	DRILL PAD PROFILE & CROSS SECTIONS
8	FRAC PIT PROFILE & CROSS SECTIONS
9	ACCESS ROADS PROFILES
10-11	ACCESS ROADS CROSS SECTIONS
12-13	CONSTRUCTION DETAILS
14	RECLAMATION PLAN

**MISS Utility of West Virginia**  
1-800-245-4848  
West Virginia State Law  
(Section XIV: Chapter 24-C)  
Requires that you call two business days before you dig in the state of West Virginia.  
**IT'S THE LAW!!**



The drawings, construction notes, and reference diagrams attached hereto have been prepared in accordance with the West Virginia Code of State Rules, Division of Environmental Protection, Office of Oil and Gas §35-4-21. The information reflects a temporary frac pit pond. The computed above grade storage volume is less than 15 acre feet. Filling method pumped, frac pond is lined.

DATE	REVISIONS
5-8-2012	REVISED QUANTITIES & SPOIL AREA

COVER SHEET/LOCATION MAP  
**JOHN CAMPBELL NORTH DRILL PAD SITE**  
UNION DISTRICT  
RITCHIE COUNTY, WV



**Honor**  
Since 1902  
**Bros. Engineers**  
Civil, Mining, Environmental and Consulting Engineering  
140 South Third Street, Post Office Box 308, Clarkburg, West Virginia, 26301 (304) 624-5446



Allegheny Surveys, Inc.  
172 Thompson Drive  
Bridgeport, WV 26330  
(304) 848-5035



For complete set of plans see  
Q: //OIL GAS/ SAY Files

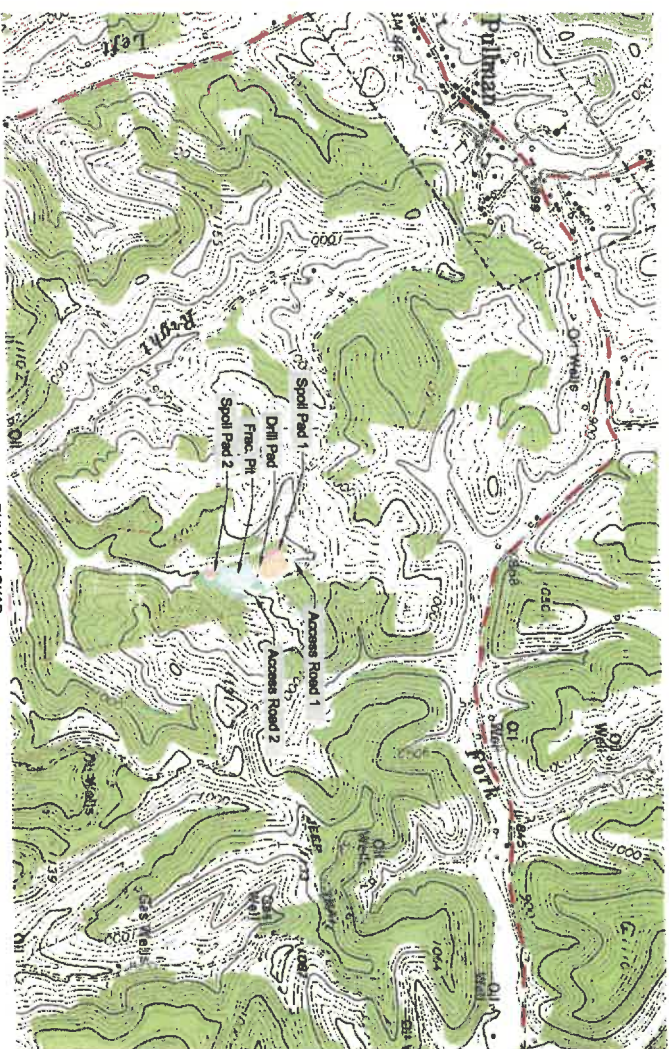
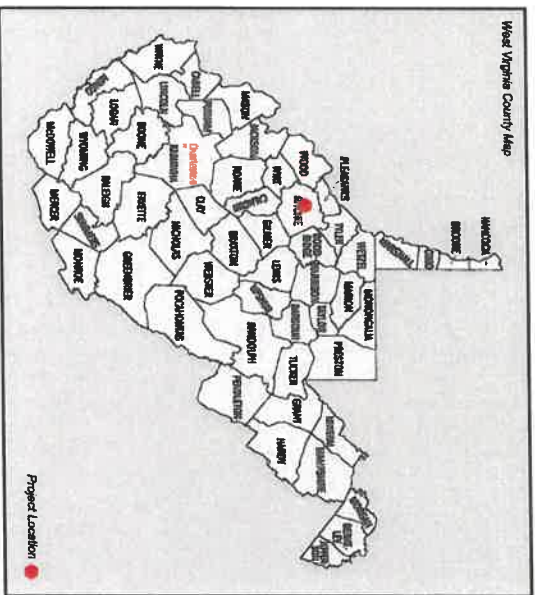
RECEIVED  
JUL 11 2012  
WV Department of Environmental Protection



# JOHN CAMPBELL NORTH DRILL PAD

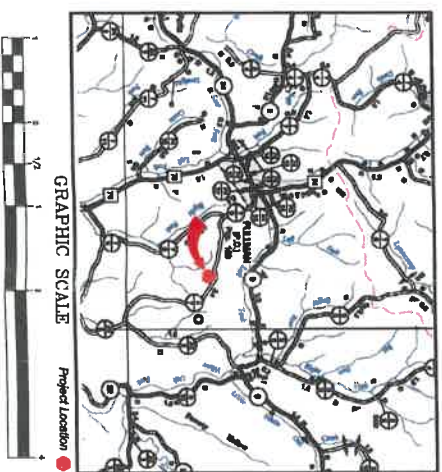
## FINAL SITE DESIGN, CONSTRUCTION PLAN, & EROSION & SEDIMENT CONTROL PLANS

### ANTERO RESOURCES APPALACHIAN CORPORATION



SITE LOCATIONS			
STATE PLANE MAD 83 (WV NORTH ZONE)	LATITUDE	LONGITUDE	
Center of Pad	38°17'51.76" N	80°55'27.41" W	
Begin Access Road	38°17'53.06" N	80°55'27.41" W	ES-509050.0033
Center of Pad (DIN 85-17 Meters)	114-535800.0039	ES-509050.0033	

FLOODPLAIN CONDITIONS	
DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN FLOODPLAIN:	NO
PERMIT NEEDED FROM COUNTY FLOODPLAIN COORDINATOR:	NO
HEC-RAS STUDY COMPLETED:	N/A
FLOODPLAIN SHOWN ON DRAWINGS:	N/A
FIRM MAP NUMBER(S) FOR SITE:	54086C0225C
ACREAGE OF CONSTRUCTION IN FLOODPLAIN:	N/A



GRAPHIC SCALE  
1 INCH = 1 MILE

Design Certification

The drawings, construction notes, and reference diagrams attached hereto have been prepared in accordance with the West Virginia Code of State Rules, Division of Environmental Protection, Office of Oil and Gas §35-4-21. The information reflects a temporary frac pit pond. The computed above grade storage volume is less than 15 acre feet. Filling method pumped, frac. pond is lined.

**Project Contacts**

**Antero Resources**

Anthony Smith - Construction  
304-489-3405 Off. 304-473-6196 Cell

Ryan Ward - Environmental Engineer (ALUSTAR)  
806-213-2666 ext 311 Off. 304-492-7477 Cell

John Kewcak - Engineer  
817-388-1553

Darryl Woods  
817-771-4598

Aaron Kuzniek - Construction Manager  
405-227-8344

**Surveyor & Engineer**

Bill Yelzer, P.E., P.S. - Allegheny Surveying Inc.  
304-848-5055 Off. 304-519-4837 Cell

Tom Coathran, P.E., P.S. - Homer Brothers Engineers  
304-624-0443 Office

**MISS Utility of West Virginia**  
1-800-245-4848  
West Virginia State Law  
(Section XIV: Chapter 24-C)  
Requires that you dig in the state of West Virginia.  
**IT'S THE LAW!!!**



**Know what's below.**  
**Call before you dig.**



05/31/2012

AFFECTED TAX PARCELS: 1328.3 UNION DISTRICT

TM 13 - PCL 29 John Campbell  
WB 372705 120.25 Acres  
(Affected area from Proposed Access Roads = 1,503 feet, 3.02 Acres)  
(Affected area from Proposed Drill Pad = 2.65 Acres)  
(Affected area from Proposed Frac Pit = 3.12 Acres)  
(Affected area from Proposed Spoil Piles = 1.19 Acres)

Well Table				
Prop. Well Complete Unit 2 WVA NUMBER: 20120111 LATITUDE: 80°59'17.88" LONGITUDE: 80°59'17.88"	Prop. Well Complete Unit 2 WVA NUMBER: 20120111 LATITUDE: 80°59'17.88" LONGITUDE: 80°59'17.88"	Prop. Well Complete Unit 2 WVA NUMBER: 20120111 LATITUDE: 80°59'17.88" LONGITUDE: 80°59'17.88"	Prop. Well Complete Unit 2 WVA NUMBER: 20120111 LATITUDE: 80°59'17.88" LONGITUDE: 80°59'17.88"	Prop. Well Complete Unit 2 WVA NUMBER: 20120111 LATITUDE: 80°59'17.88" LONGITUDE: 80°59'17.88"

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  - \* 250' occupied dwelling or barn greater 2500 SF used for poultry or dairy measured from the center of the pad.
  - \* 100' from edge of disturbance to wetlands, perennial streams, natural or artificial lake, pond or reservoir.
  - \* 300' from edge of disturbance to naturally reproducing trout streams.
  - \* 100' of surface or ground water intake to a public water supply.

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FINAL FIT PROFILE & CROSS SECTIONS	8
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CONSTRUCTION DETAILS	12-13
RECLAMATION PLAN	14

Office of Oil & Gas  
APR 9 2012

DATE	REVISIONS
5-8-2012	REVISED QUANTITIES & SPOIL AREA
6-29-2012	REVISED WELL TABLE & AFFECTED PARCELS DATA

**ANTERO RESOURCES**

THIS DOCUMENT IS PREPARED FOR ANTERO RESOURCES APPALACHIAN CORP

**Hornor**  
Since 1902 **Bros. Engineers**  
Civil, Mining, Environmental and Consulting Engineering  
140 South Third Street, Post Office Box 356,  
Cortehouse, West Virginia, 26301 (304) 624-6446

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