**west virginia** department of environmental protection

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

May 28, 2015

**WELL WORK PERMIT**

**Horizontal 6A Well**

This permit, API Well Number: 47-9502248, issued to ANTERO RESOURCES 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 completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

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: PLUM RUN UNIT 3H
Farm Name: HARTLEY, DAVID M.
**API Well Number: 47-9502248**
**Permit Type: Horizontal 6A Well**
Date Issued: 05/28/2015

**Promoting a healthy environment.**

API Number: 9502248

# 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

1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.

2. 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.

3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. 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.

4. 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.

5. 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 fifteen 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.

6. 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.

7. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.

8. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

9. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced on this well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov within 30 days of commencement of drilling.

WW-6B
(9/13)

4709502248

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

| 1) Well Operator: | Antero Resources Corporation | 494488557 | 095 - Tyler | Meade | Pennsboro 7.5' |
|---|---|---|---|---|---|
| | | Operator ID | County | District | Quadrangle |

2) Operator's Well Number: Plum Run Unit 3H Well Pad Name: Existing Hartley East Pad

3) Farm Name/Surface Owner: Hartley, David M. Public Road Access: CR 6/8

4) Elevation, current ground: 1021' Elevation, proposed post-construction: 1021'

5) Well Type (a) Gas ■ Oil ____ Underground Storage ____
Other ____
(b)If Gas Shallow ■ Deep ____
Horizontal ■

Michael Hoff
3/26/15

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Associated Pressure(s):
Marcellus Shale: 6500' TVD, Anticipated Thickness- 75 feet, Associated Pressure- 2800#

8) Proposed Total Vertical Depth: 6500' TVD

9) Formation at Total Vertical Depth: Marcellus Shale

10) Proposed Total Measured Depth: 18,000' MD

11) Proposed Horizontal Leg Length: 10,744'

12) Approximate Fresh Water Strata Depths: 180'

13) Method to Determine Fresh Water Depths: Freeland Unit 2H (API# 47-095-02127) on same pad.

14) Approximate Saltwater Depths: 577', 730', 1753'

15) Approximate Coal Seam Depths: None reported

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

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

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

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WW-6B
(9/13)

18) **CASING AND TUBING PROGRAM**

| TYPE | Size | New or Used | Grade | Weight per ft. (lb/ft) | FOOTAGE: For Drilling | INTERVALS: Left in Well | CEMENT: Fill-up (Cu. Ft.) |
|---|---|---|---|---|---|---|---|
| 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# | 300' | 300' | CTS, 417 Cu. Ft |
| Coal | 9-5/8" | New | J-55 | 36# | 2455' | 2455' | CTS, 1000 Cu. Ft. |
| Intermediate | | | | | | | |
| Production | 5-1/2" | New | P-110 | 20# | 18,000' | 18,000' | 4556 Cu. Ft. |
| Tubing | 2-3/8" | New | N-80 | 4.7# | | 7,100' | |
| Liners | | | | | | | |

MDG
3/26/15

| TYPE | Size | Wellbore Diameter | Wall Thickness | Burst Pressure | Cement Type | Cement Yield (cu. ft./k) |
|---|---|---|---|---|---|---|
| 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 | | | |

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WW-6B
(9/13)

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

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

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

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

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

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 13.08 existing acres

22) Area to be disturbed for well pad only, less access road (acres): 2.68 existing acres

23) Describe centralizer placement for each casing string:

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

24) Describe all cement additives associated with each cement type:

Conductor: no additives, Class A cement.
Surface: Class A cement with 2-3% calcium chloride and 1/4 lb of flake
Intermediate: Class A cement with 1/4 lb of flake, 5 gallons of clay treat
Production: Lead cement- 50/50 Class H/Poz + 1.5% salt + 1% C-45 + 0.5% C-16a + 0.2% C-12 + 0.45% C-20 + 0.05% C-51
Production: Tail cement- Class H + 45 PPS Calcium Carbonate + 1.0% FL-160 + 0.2% ACGB-47 + 0.05% ACSA-51 + 0.2% ACR-20

25) Proposed borehole conditioning procedures:

Conductor: blowhole clean with air, run casing, 10 bbls fresh water.
Surface: blowhole clean with air, trip to conductor shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate pipe capacity + 40 bbls fresh water followed by 25 bbls bentonite mud, 10 bbls fresh water spacer.
Intermediate: blowhole clean with air, trip to surface casing shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate 40 bbls brine water followed by 10 bbls fresh water and 25 bbls bentonite mud, pump 10 bbls fresh water.
Production: circulate with 14 lb/gal NaCl mud, trip to middle of lateral, circulate, pump high viscosity sweep, trip to base of curve, pump high viscosity sweep, trip to top of curve, trip to bottom, circulate, pump high viscosity sweep, trip out, run casing, circulate 10 bbls fresh water, pump 48 bbls barite pill, pump 10 bbls fresh water followed by 48 bbls mud flush and 10 bbls water.

*Note: Attach additional sheets as needed.

WW-9
(2/15)

4709502248

API Number 47 - 095 -
Operator's Well No. Plum Run Unit 3H

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Antero Resources Corporation OP Code 494488557

Watershed (HUC 10) Outlet Middle Island Creek Quadrangle Pennsboro 7.5'

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

Will a pit be used? Yes ☐ No ☑

If so, please describe anticipated pit waste: No pit will be used at this site (Drilling and Flowback Fluids will be stored in tanks. Cuttings will be tanked and hauled off site.)

Will a synthetic liner be used in the pit? Yes ☐ No ☑ If so, what ml.? N/A

Proposed Disposal Method For Treated Pit Wastes:

MDG
3/26/15

- ____ 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 (Supply form WW-9 for disposal location) (Meadowfill Landfill Permit #SWF-1032-98)
- ____ Other (Explain ____

Will closed loop system be used? If so, describe: Yes

Drilling medium anticipated for this well (vertical and horizontal)? 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 in drilling medium? Please See Attachment

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

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

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

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

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 ____

Company Official (Typed Name) Amanda Fernley

Company Official Title Environmental Manager

NATALIE KOMP
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID # 20144028170
MY COMMISSION EXPIRES JULY 18, 2018

Received
Office of Oil & Gas
MAR 27 2015

Subscribed and sworn before me this 20th day of March, 20 15

Natalie K Notary Public

My commission expires July 18, 2018

4709502248

Form WW-9

Operator's Well No. Plum Run Unit 3H

Antero Resources Corporation

Proposed Revegetation Treatment: Acres Disturbed 13.08 Prevegetation pH

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

Fertilizer type Hay or straw or Wood Fiber (will be used where needed)

Fertilizer amount 500 lbs/acre

Mulch 2-3 Tons/acre

Existing Entrance Road A (1.70) + Existing Water Containment Pad B (0.53) + Existing Access Road A (3.80) + Existing Access Road B (0.09) + Existing Access Road C (0.28) + Existing Excess Material Stockpile B (0.73) + Existing Production Equipment Pad (0.63) + Existing Well Pad (2.68) + Existing Water Containment Pad A (1.33) + Existing Excess Material Stockpile A (1.31) = 13.08 Existing Acres

**Seed Mixtures**

| Temporary | | Permanent | |
|---|---|---|---|
| Seed Type | lbs/acre | Seed Type | lbs/acre |
| Tall Fescue | 45 | Tall Fescue | 45 |
| Perennial Rye Grass | 20 | Perennial Rye Grass | 20 |
| *or type of grass seed requested by surface owner | | *or type of grass seed requested by surface owner | |

Attach:
Drawing(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided)

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Michael Dorff

Comments: Preseed & mulch any disturbed areas per WVDEP regulations. Maintain & upgrade E-n-S as necessary.

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Title: Oil & Gas Inspector Date: 3/26/15

Field Reviewed? (✓) Yes ( ) No

# *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 Fluild Solvent – Aliphatic Hydrocarbon
14. Ligco
    Highly Oxidized Leonardite – Filteration 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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# Well Site Safety Plan
# Antero Resources

**Well Name:** **Woodworth Unit 1H, Woodworth Unit 2H, Woodworth Unit 3H, Freeland Unit 1H, Freeland Unit 2H, Plum Run Unit 1H, Plum Run Unit 2H, Plum Run Unit 3H**

Michael Doff
3/26/15

**Pad Location:** **HARTLEY EAST PAD**
Tyler County/ Meade District

**GPS Coordinates:** Lat 39°21'55.16"/Long 80°59'35.07" (NAD83)

## Driving Directions:

From the intersection of Main Street and US 50 near Ellenboro, head North 0.2 miles toward Ritchie County School Road. Take the second right onto County Road 50/39/Old US 50W/Washington Street for 1.4 miles. Turn left on County Road 1/Hitchcock Run and follow for approximately 5.7 miles. Continue on County Route 5/Freeland-Hebron Road and follow for approximately 1.1 miles. Turn right onto County Route 3/2 and follow for approximately 0.4 miles. Continue on County Road 32/Plum Run Road for about 0.3 miles. Turn right onto Brush Run Road/County Road 6/5/Plum Run Road and follow for about 0.4 miles. Take a slight left onto Ricky Run and follow for approximately 0.4 miles. Access Road will be on left.

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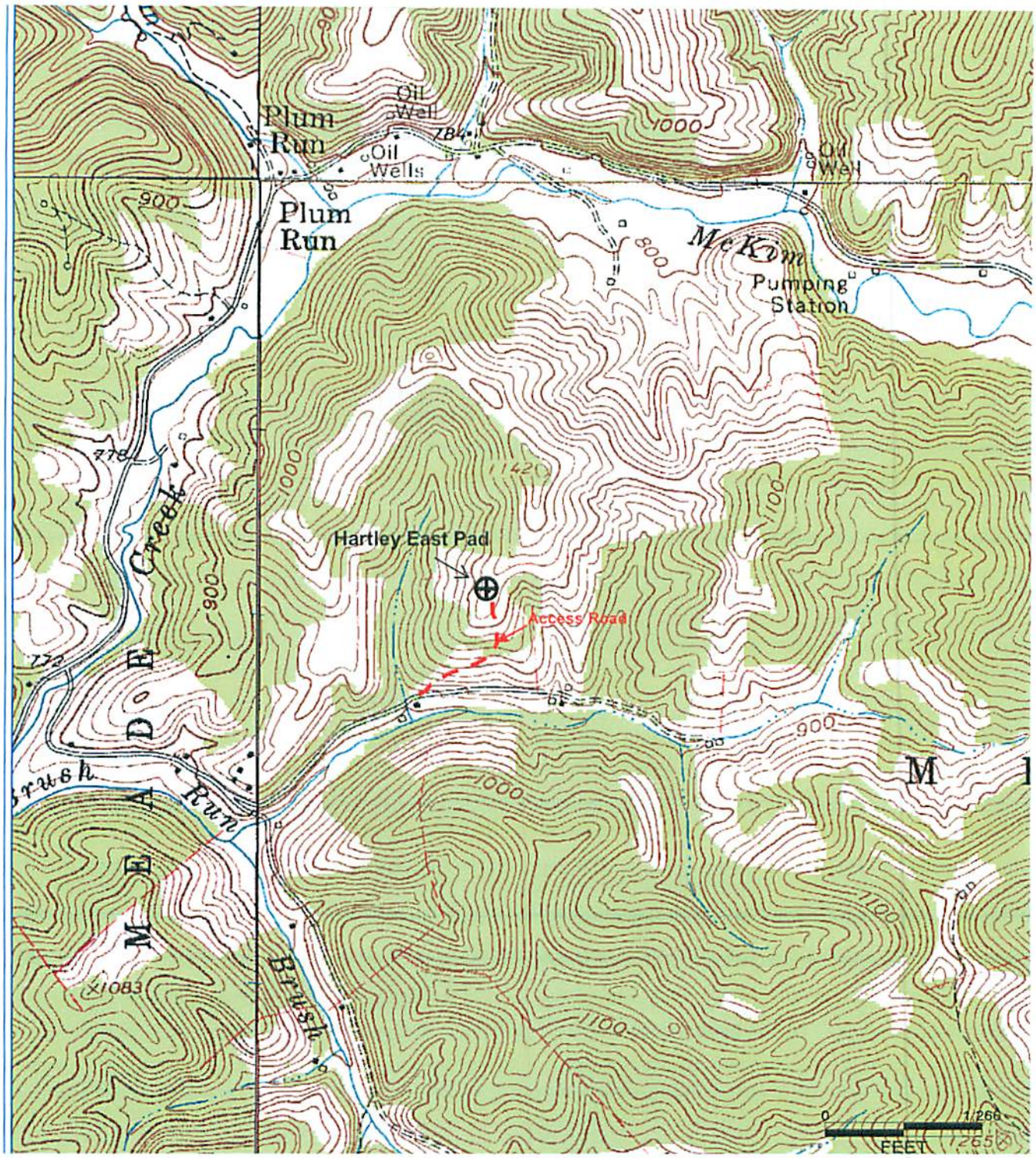
MAR 27 2015

**EMERGENCY (24 HOUR) CONTACT 1-800-878-1373**

4709502248

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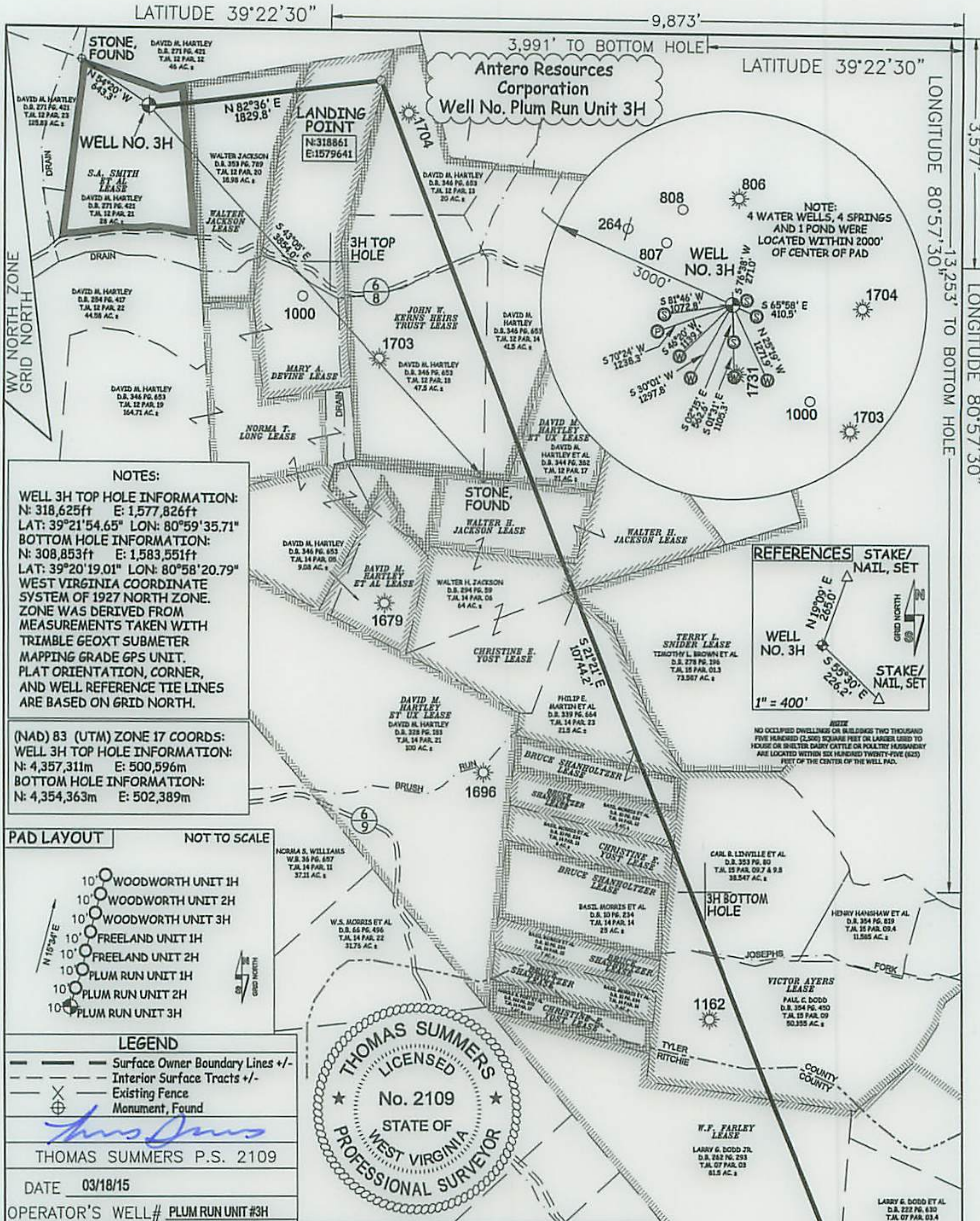
**Antero Resources Corporation**

Appalachian Basin
Plum Run Unit 3H
Tyler County

Quadrangle: Ellenboro & Pennsboro
Watershed: Middle Island Creek
District: Meade
Date: 7-26-2013




THOMAS SUMMERS P.S. 2109

DATE 03/18/15

OPERATOR'S WELL# PLUM RUN UNIT #3H

JOB # 15-005WA
DRAWING # PLUMRUN3HR2
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 RULES ISSUED AND PERSCRIBED BY THE DEPTARTMENT 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

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

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

API WELL # 47 - 095 - 02248
STATE COUNTY PERMIT

LOCATION: ELEVATION ORIGINAL 1,031' - PROPOSED 1,021' WATERSHED OUTLET MIDDLE ISLAND CREEK
QUADRANGLE PENNSBORO 7.5' DISTRICT MEADE COUNTY TYLER
SURFACE OWNER DAVID M. HARTLEY ACREAGE 28 ACRES +/-
OIL & GAS ROYALTY OWNER S.A. SMITH ET AL; WALTER JACKSON; MARY A. DEVINE; JOHN W. KERNS HEIRS TRUST; DAVID M. HARTLEY ET UX; WALTER H. JACKSON; CHRISTINE E. YOST; WALTER H. JACKSON; TERRY L. SNIDER; BRUCE SHANHOLTZER; BRUCE SHANHOLTZER; VICTOR AYERS; W.F. FARLEY
LEASE ACREAGE 28 AC±; 24.0125 AC±; 40 AC±; 109 AC±; 21 AC±; 14.5 AC±; 52.125 AC±; 19.38 AC±; 221.24 AC±; 8 AC±; 8 AC±; 167.5 AC±; 192 AC±
PROPOSED WORK: DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE X
PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION X OTHER PHYSICAL CHANGE IN WELL
(SPECIFY) ___ PLUG & ABANDON CLEAN OUT & REPLUG
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,500' TVD 18,000' MD
WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER CT CORPORATION SYSTEM
ADDRESS 1615 WYNKOOP STREET DENVER, CO 80202 ADDRESS 5400 D BIG TYLER ROAD CHARLESTON, WV 25313

COUNTY NAME PERMIT

FORM WW-6

WW-6A1

4709502248

Operator's Well Number Plum Run Unit 3H

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 |
|---|---|---|---|
| **S.A. Smith, et al Lease** | | | |
| S.A. Smith, et al | Antero Resources Corporation | 1/8+ | 0434/0609 |
| **Walter Jackson Lease** | | | |
| Walter Jackson | Antero Resources Corporation | 1/8+ | 0442/0385 |
| **Mary A. Devine Lease** | | | |
| Mary Ann Devine | Antero Resources Corporation | 1/8+ | 0471/0609 |
| **John W. Kerns Heirs Trust Lease** | | | |
| John W. Kerns Heirs Trust | Alliance Petroleum Corporation | 1/8 | 0333/0035 |
| Alliance Petroleum Corporation | Antero Resources Appalachian Corporation | Assignment | 0390/0568 |
| Antero Resources Appalachian Corporation | Antero Resources Corporation | Name Change | Exhibit 1 |
| **David M. Hartley, et ux Lease** | | | |
| David M. Hartley | Antero Resources Corporation | 1/8+ | 0458/0036 |
| Antero Resources Appalachian Corporation | Antero Resources Corporation | Name Change | Exhibit 1 |
| **Walter H. Jackson Lease** | | | |
| Walter Jackson | Antero Resources Corporation | 1/8+ | 0476/0228 |
| **Walter H. Jackson Lease** | | | |
| Walter Jackson | Antero Resources Appalachian Corporation | 1/8+ | 0440/0269 |
| Antero Resources Appalachian Corporation | Antero Resources Corporation | Name Change | Exhibit 1 |
| **Christine E. Yost Lease** | | | |
| Christine E. Yost | Rockford Energy, LLC | 1/8+ | 0405/0305 |
| Rockford Energy, LLC | Antero Resources Corporation | Assignment | 0438/0019 |
| **Terry L. Snider Lease** | | | |
| Terry L. Snider | Antero Resources Corporation | 1/8+ | 0430/0824 |
| **Bruce Shanholtzer Lease** | | | |
| Bruce Shanholtzer | Antero Resources Corporation | 1/8+ | 0471/0625 |

*Partial Assignments to Antero Resources Corporation include 100% rights to extract, produce and market the oil and gas from the Marcellus and any other formations completed with this well.

Received
Office of Oil & Gas
MAR 27 2015

**CONTINUED ON NEXT PAGE**

WW-6A1

4709502248

Operator's Well Number Plum Run Unit 3H

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 |
|---|---|---|---|
| **Victor Ayers Lease** | | | |
| Victor Ayers | Consolidated Gas Supply Corporation | 1/8 | 0182/0175 |
| Consolidated Gas Supply Corporation | Consolidated Gas Transmission Corporation | Assignment | 0249/0287 |
| Consolidated Gas Transmission Corporation | CNG Development Company | Name Change | 0253/0057 |
| CNG Development Company | CNG Producing Company | Name Change | Exhibit 2 |
| CNG Producing Company | Dominion Exploration & Production, Inc. | Name Change | Harrison County AOI 0058/0366 |
| Dominion Exploration & Production, Inc. | Consol Gas Company | Certificate of Amendment to the Certificate of Authority | Doddridge County DB 0286/0144 |
| Consol Gas Company | CNX Gas Company, LLC | Notice of Name Changes and Mergers | Doddridge County DB 0292/0469 |
| **CNX Gas Company, LLC** | **Antero Resources Corporation** | ***Partial Term Assignment of Oil & Gas Leases** | **0468/0496** |

***Partial Assignments to Antero Resources Corporation include 100% rights to extract, produce and market the oil and gas from the Marcellus and any other formations completed with this well.**

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

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Office of Oil & Gas
MAR 27 2015

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WW-6A1
(5/13)

Operator's Well No. Plum Run Unit 3H

**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:

| Lease Name or Number | Grantor, Lessor, etc. | Grantee, Lessee, etc. | Royalty | Book/Page |
|---|---|---|---|---|
| **W.F. Farley Lease** | | | | |
| | W.F. Farley, et al | Ruth A. McBurney | 1/8+ | 0068/0226 |
| | Ruth A. McBurney | Carl Perkins | Assignment | 0086/0514 |
| | Carl D. Perkins | Perkins Oil & Gas, Inc. | Assignment | 0232/0060 |
| | **Perkins Oil & Gas, Inc., a West Virginia Corp.** | **Antero Resources Corporation** | **Assignment** | **0264/1045** |

***Partial Assignments to Antero Resources Corporation include 100% rights to extract, produce and market the oil and gas from the Marcellus and any other formations completed with this well.**

**Acknowledgement of Possible Permitting/Approval**
**In Addition to the Office of Oil and Gas**

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

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The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator: Antero Resources Corporation
By: Ward McNeilly
Its: VP of Reserves, Planning & Midstream

4709502248

FORM WW-6A1
EXHIBIT 1

FILED
JUN 10 2013
IN THE OFFICE OF SECRETARY OF STATE

Natalie E. Tennant
Secretary of State
1900 Kanawha Blvd E
Bldg 1, Suite 157-K
Charleston, WV 25305

Penney Barker, Manager
Corporations Division
Tel: (304)558-8000
Fax: (304)558-8381
Website: www.wvsos.com
E-mail: business@wvsos.com

Office Hours: Monday – Friday
8:30 a.m. – 5:00 p.m. ET

**FILE ONE ORIGINAL**
(Two if you want a filed stamped copy returned to you)
**FEE: $25.00**

# APPLICATION FOR AMENDED CERTIFICATE OF AUTHORITY

**** In accordance with the provisions of the West Virginia Code, the undersigned corporation hereby **** applies for an Amended Certificate of Authority and submits the following statement:

1. Name under which the corporation was authorized to transact business in WV: Antero Resources Appalachian Corporation
2. Date Certificate of Authority was issued in West Virginia: 6/25/2008
3. Corporate name has been changed to: Antero Resources Corporation
(Attach one Certified Copy of Name Change as filed in home State of incorporation.)
4. Name the corporation elects to use in WV: Antero Resources Corporation
(due to home state name not being available)
5. Other amendments:
(attach additional pages if necessary)

6. Name and phone number of contact person. (This is optional, however, if there is a problem with the filing, listing a contact person and phone number may avoid having to return or reject the document.)

Alvyn A. Schopp — (303) 357-7310
Contact Name — Phone Number

7. Signature information (See below *Important Legal Notice Regarding Signature):

Print Name of Signer: Alvyn A. Schopp — Title/Capacity: Authorized Person

Signature: [signature] — Date: June 10, 2013

*Important Legal Notice Regarding Signature: Per West Virginia Code §31D-1-129, Penalty for signing false document. Any person who signs a document he or she knows is false in any material respect and knows that the document is to be delivered to the secretary of state for filing is guilty of a misdemeanor and, upon conviction thereof, shall be fined not more than one thousand dollars or confined in the county or regional jail not more than one year, or both.

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FORM WW-6A1
EXHIBIT 2, PAGE 1

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# State of West Virginia

## CERTIFICATE

*I, Ken Hechler, Secretary of State of the State of West Virginia, hereby certify that*

originals of a Notice of Intention to Withdraw with the application of

CNG DEVELOPMENT COMPANY

for a Certificate of Withdrawal from West Virginia, signed and verified, as required by the provisions of Chapter 31, Article 1, Section 60 of the West Virginia Code are filed in my office and conform to law. Therefore, I issue this

CERTIFICATE OF WITHDRAWAL

and I attach to this certificate a duplicate original of the application.

*Given under my hand and the Great Seal of the State of West Virginia, on this*

TENTH *day of*

JULY *19* 91

Ken Hechler

*Secretary of State.*

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FORM WW-6A1
EXHIBIT 2, PAGE 2

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KEN HECHLER
FEE $5.00

TO BE FILED IN DUPLICATE ORIGINALS

FILED
JUL 10 1991
OFFICE OF
SECRETARY OF STATE
WEST VIRGINIA

# APPLICATION FOR CERTIFICATE OF WITHDRAWAL OF

CNG Development Company

In accordance with Chapter 31, Article 1, Section 60 of the Code of West Virginia, the undersigned corporation hereby applies for a certificate of withdrawal from West Virginia, and submits the following statement:

The name of the corporation is: CNG Development Company

It is incorporated under the laws of Delaware

IT IS NOT TRANSACTING BUSINESS IN WEST VIRGINIA.

It hereby surrenders its authority to transact business in West Virginia. It revokes the authority of its registered agent in West Virginia to accept service of process, and consents that service of process in any action, suit or proceeding based upon any course of action arising in West Virginia during the time the corporation was authorized to transact business in West Virginia may thereafter be made on the corporation by service thereof on the Secretary of State of West Virginia.

The post office address to which the Secretary of State may mail a copy of any process against the corporation is: CNG Producing Company, CNG Tower, 1450 Poydras Street, New Orleans, LA 70112-6000 Attn: Corporate Secretary

The aggregate number of shares which it has authority to issue, itemized by classes, par value of shares, shares without par, and series, if any, within a class, as of this date is

| NUMBER OF SHARES | CLASS | SERIES | PAR VALUE/NO PAR |
|---|---|---|---|
| 1,400,000 | Common | | $100 |

The aggregate number of its issued shares, itemized by classes, par value of shares, shares without par, and series, if any, within a class, as of this date is

| NUMBER OF SHARES | CLASS | SERIES | PAR VALUE/NO PAR |
|---|---|---|---|
| 1,168,410 | Common | | $100 |

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The amount of its state capital as of this date is $[illegible]

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EXHIBIT 2, PAGE 3

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CNG Development Company (Through CNG Producing Company)

corporate name

President/Vice President

D. Malcolm Johns Jr.
Secretary

State of Louisiana
Parish Orleans

I James E. Wright, Jr. a Notary Public, do hereby certify that D. Malcolm Johns, Jr. the Secretary office of CNG Producing Company corporate name

office

appeared before me and they signed the foregoing as the act and deed of the corporation.

Notary Public

(notary seal)

My commission expires at death

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4709502248

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

March 20, 2015

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

RE: Plum Run Unit 3H
Quadrangle: Pennsboro 7.5'
Tyler County/Meade District, West Virginia

Mr. Martin:

Antero Resources Corporation (Antero) is submitting the following application for a new well work permit for the Plum Run Unit 3H 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 Plum Run Unit 3H horizontal lateral will drill through including any and all roads crossed under as identified on the attached survey plat.

Sincerely,

Spencer Booth
Senior Landman

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(1/12)

4709502248

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

**Date of Notice Certification:** 03/20/2015

**API No.** 47- 095 -
**Operator's Well No.** Plum Run Unit 3H
**Well Pad Name:** Existing Hartley East 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: | West Virginia | UTM NAD 83 | Easting: | 500,596m |
| County: | Tyler | | Northing: | 4,357,311m |
| District: | Meade | Public Road Access: | | CR 6/8 |
| Quadrangle: | Pennsboro 7.5' | Generally used farm name: | | Hartley, David M. |
| Watershed: | Outlet Middle Island Creek | | | |

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.

| 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:<br>*PLEASE CHECK ALL THAT APPLY | OOG OFFICE USE ONLY |
|---|---|
| ☐ 1. NOTICE OF SEISMIC ACTIVITY or ■ NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED | ☑ RECEIVED/ NOT REQUIRED |
| ■ 2. NOTICE OF ENTRY FOR PLAT SURVEY or ☐ NO PLAT SURVEY WAS CONDUCTED | ☑ RECEIVED |
| ☐ 3. NOTICE OF INTENT TO DRILL or ■ NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or<br>☐ WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH) | ☑ RECEIVED/ NOT REQUIRED |
| ■ 4. NOTICE OF PLANNED OPERATION | ☑ RECEIVED |
| ■ 5. PUBLIC NOTICE | ☑ RECEIVED |
| ■ 6. NOTICE OF APPLICATION | ☑ RECEIVED |

**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.

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(1/12)

4709502248

**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: | Antero Resources Corporation | Address: | 1615 Wynkoop Street |
| By: | Kevin Kilstrom | | Denver, CO 80202 |
| Its: | VP of Production | Facsimile: | 303-357-7315 |
| Telephone: | 303-357-7310 | Email: | asteele@anteroresources.com |

NOTARY SEAL

NATALIE KOMP
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID # 20144028170
MY COMMISSION EXPIRES JULY 18, 2018

Subscribed and sworn before me this 20th day of March 2015

Natalie Komp Notary Public

My Commission Expires July 18, 2018

**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.

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WW-6A
(9-13)

API NO. 47- 095 -
OPERATOR WELL NO. Plum Run Unit 3H
Well Pad Name: Existing Hartley East Pad

# 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:** 3/23/2015 **Date Permit Application Filed:** 3/23/2015

**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. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site Safety Plan ("WSSP") to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

☑ Application Notice ☑ WSSP Notice ☑ E&S Plan Notice ☑ Well Plat Notice is hereby provided to:

☑ SURFACE OWNER(s)
Name: David M. Hartley
Address: 354 Brush Run Road
Ellenboro, WV 26346
Name:
Address:

☑ SURFACE OWNER(s) (Road and/or Other Disturbance)
Name: Jason Hartley
Address: 354 Brush Run Road
Ellenboro, WV 26346
Name:
Address:

☐ SURFACE OWNER(s) (Impoundments or Pits)
Name:
Address:

☐ COAL OWNER OR LESSEE
Name: NO DECLARATIONS ON RECORD WITH COUNTY
Address:

☐ COAL OPERATOR
Name:
Address:

☑ WATER PURVEYOR(s)/OWNER(s) OF WATER WELL, SPRING OR OTHER WATER SUPPLY SOURCE
Name: PLEASE SEE ATTACHMENT
Address:

☐ OPERATOR OF ANY NATURAL GAS STORAGE FIELD
Name:
Address:

*Please attach additional forms if necessary

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WW-6A
(8-13)

API NO. 47- 095 -
OPERATOR WELL NO. Plum Run Unit 3H
Well Pad Name: Existing Hartley East Pad

**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 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.

Pursuant to W. Va. Code R. § 35-8-5.7.a, the operator shall provide the Well Site Safety Plan to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Pursuant to W. Va. Code R. § 35-8-15.2.c, this notice shall: (1) contain a statement of the surface owner's and water purveyor's right to request sampling and analysis; (2) advise the surface owner and water purveyor of the rebuttable presumption for contamination or deprivation of a fresh water source or supply; advise the surface owner and water purveyor that refusal to allow the operator to conduct a pre-drilling water well test constitutes a method to rebut the presumption of liability; (3) advise the surface owner and water purveyor of his or her independent right to sample and analyze any water supply at his or her own expense; advise the surface owner and water purveyor whether or not the operator will utilize an independent laboratory to analyze any sample; and (4) advise the surface owner and or water purveyor that he or she can obtain from the Chief a list of water testing laboratories in the subject area capable of and qualified to test water supplies in accordance with standard acceptable methods.

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

**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 well pad 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

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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 factors, if necessary.

**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. The operator shall provide an analysis to such surface landowner or water purveyor at their request.

**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. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

**Rebuttable Presumption for Contamination or Deprivation of a Fresh Water Source or Supply:**

W. Va. Code § 22-6A-18 requires that (b) unless rebutted by one of the defenses established in subsection (c) of this section, in any action for contamination or deprivation of a fresh water source or supply within one thousand five hundred feet of the center of the well pad for horizontal well, there is a rebuttable presumption that the drilling and the oil or gas well or either was the proximate cause of the contamination or deprivation of the fresh water source or supply. (c) In order to rebut the presumption of liability established in subsection (b) of this section, the operator must prove by a preponderance of the evidence one of the following defenses: (1) The pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration water well test. (2) The landowner or water purveyor refused to allow the operator access to the property to conduct a predrilling or prealteration water well test. (3) The water supply is not within one thousand five hundred feet of the well. (4) The pollution occurred more than six months after completion of drilling or alteration activities. (5) The pollution occurred as the result of some cause other than the drilling or alteration activity. (d) Any operator electing to preserve its defenses under subdivision (1), subsection (c) of this section shall retain the services of an independent certified laboratory to conduct the predrilling or prealteration water well test. A copy of the results of the test shall be submitted to the department and the surface owner or water purveyor in a manner prescribed by the secretary. (e) Any operator shall replace the water supply of an owner of interest in real property who obtains all or part of that owner's supply of water for domestic, agricultural, industrial or other legitimate use from an underground or surface source with a comparable water supply where the secretary determines that the water supply has been affected by contamination, diminution or interruption proximately caused by the oil or gas operation, unless waived in writing by that owner. (f) The secretary may order the operator conducting the oil or gas operation to: (1) Provide an emergency drinking water supply within twenty-four hours; (2) Provide temporary water supply within seventy-two hours; (3) Within thirty days begin activities to establish a permanent water supply or submit a proposal to the secretary outlining the measures and timetables to be used in establishing a permanent supply. The total time in providing a permanent water supply may not exceed two years. If the operator demonstrates that providing a permanent replacement water supply cannot be completed within two years, the secretary may extend the time frame on case-by-case basis; and (4) Pay all reasonable costs incurred by the real property owner in securing a water supply. (g) A person as described in subsection (b) of this section aggrieved under the provisions of subsections (b), (e) or (f) of this section may seek relief in court... (i) Notwithstanding the denial of the operator of responsibility for the damage to the real property owner's water supply or the status of any appeal on determination of liability for the damage to the real property owner's water supply, the operator may not discontinue providing the required water service until authorized to do so by the secretary or a court of competent jurisdiction.

**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 57th St. SE
Charleston, WV 25304
(304) 926-0450

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Office of Oil & Gas
MAR 27 2015

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.**

WW-6A
(8-13)

API NO. 47- 095 -
OPERATOR WELL NO. Plum Run Unit 3H
Well Pad Name: Existing Hartley East Pad

## 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.

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.

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.

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Office of Oil & Gas
MAR 27 2015

4709502248

WW-6A
(8-13)

API NO. 47- 095 -
OPERATOR WELL NO. Plum Run Unit 3H
Well Pad Name: Existing Hartley East Pad

**Notice is hereby given by:**

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

Address: 1615 Wynkoop 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.

NATALIE KOMP
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID # 20144028170
MY COMMISSION EXPIRES JULY 18, 2018

Subscribed and sworn before me this 20th day of March 2015

Natalie Komp Notary Public

My Commission Expires July 18, 2018

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MAR 27 2015

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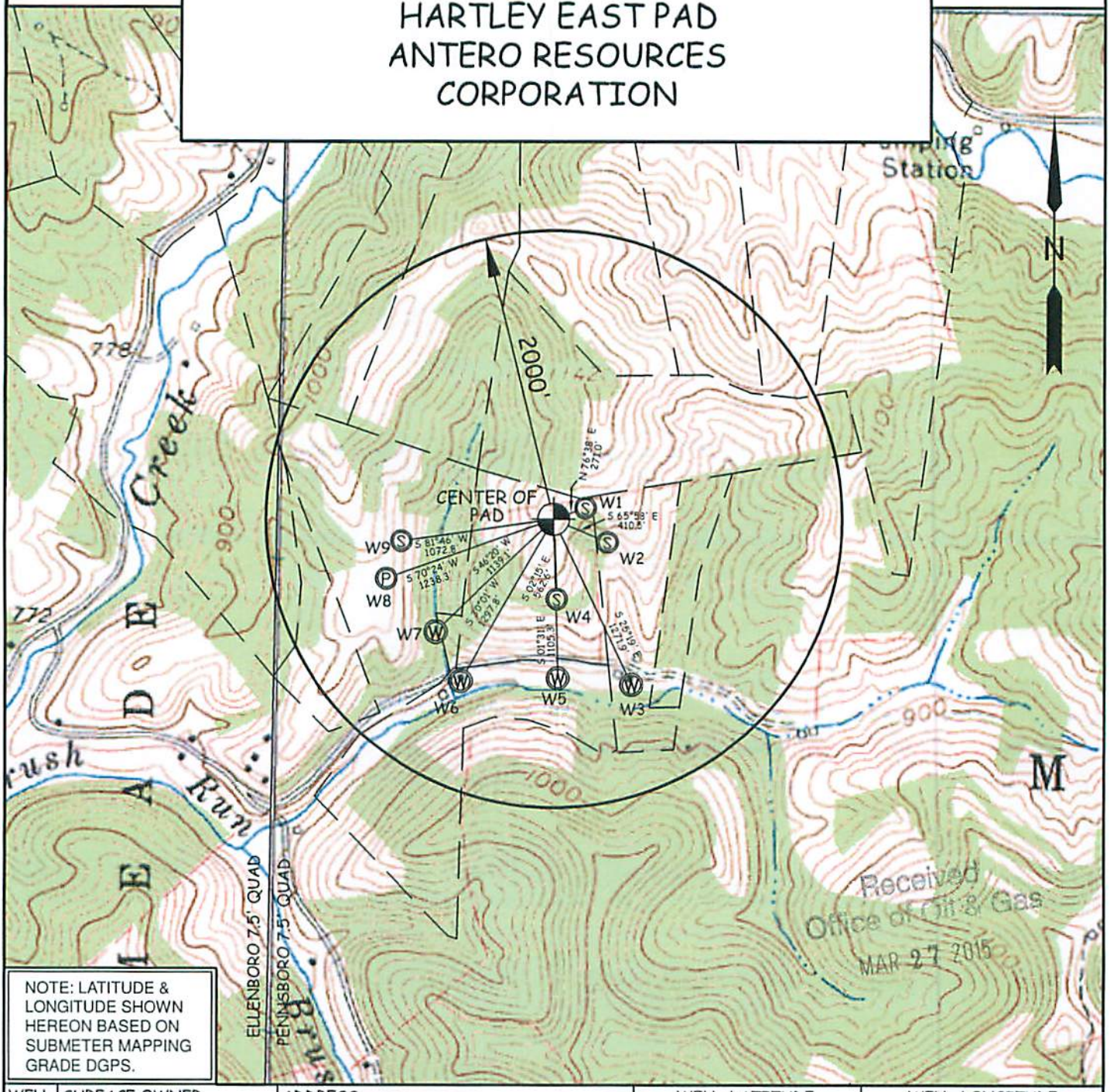
FORM WW-9

PAGE OF

# HARTLEY EAST PAD
# ANTERO RESOURCES CORPORATION




NOTE: LATITUDE & LONGITUDE SHOWN HEREON BASED ON SUBMETER MAPPING GRADE DGPS.

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MAR 27 2015

| WELL | SURFACE OWNER | ADDRESS | WELL LATITUDE | WELL LONGITUDE |
|---|---|---|---|---|
| W1 | DAVID M. HARTLEY | 354 BRUSH RUN RD., ELLENBORO, WV 26346 | 39° 21' 55.74" | 80° 59' 32.78" |
| W2 | WALTER JACKSON | 3991 ST. RT. 213 STEUBENVILLE, OH 43952 | 39° 21' 53.39" | 80° 59' 30.79" |
| W3 | WALTER JACKSON | 3991 ST. RT. 213 STEUBENVILLE, OH 43952 | 39° 21' 43.71" | 80° 59' 28.43" |
| W4 | DAVID M. HARTLEY | 354 BRUSH RUN RD., ELLENBORO, WV 26346 | 39° 21' 49.43" | 80° 59' 35.20" |
| W5 | DAVID M. HARTLEY | 354 BRUSH RUN RD., ELLENBORO, WV 26346 | 39° 21' 44.07" | 80° 59' 34.99" |
| W6 | DAVID M. HARTLEY | 354 BRUSH RUN RD., ELLENBORO, WV 26346 | 39° 21' 43.77" | 80° 59' 43.63" |
| W7 | DAVID M. HARTLEY | 354 BRUSH RUN RD., ELLENBORO, WV 26346 | 39° 21' 47.07" | 80° 59' 45.92" |
| W8 | DAVID M. HARTLEY | 354 BRUSH RUN RD., ELLENBORO, WV 26346 | 39°21'53.24" | 80°59'49.10" |
| W9 | DAVID M. HARTLEY | 354 BRUSH RUN RD., ELLENBORO, WV 26346 | 39°21'50.64" | 80°59'50.38" |

WILLOW LAND SURVEYING, PLLC
P.O. BOX 17, PENNSBORO, WV 26415
(304) 659-1717

TOPO SECTION(S) OF ; PENNSBORO 7.5' QUAD. & ELLENBORO 7.5' QUAD.

JOB #: 13-081WA

DATE: 11/06/14

DRAWN BY: D.L.P.

FILE: HARTLEYEASTWATERMAP

SCALE : 1-INCH = 1000-FEET

0' 1000' 2000' 3000'

4709502248

## WW-6A Notice of Application Attachment:

### Water Well, Developed Spring & Pond Owners:

**Owner:** David M. Hartley (3 Water Wells, 3 Developed Springs, 1 Pond)
**Address:** 354 Brush Run Road
Ellenboro, WV 26346

**Owner:** Walter Jackson (1 Water Well, 1 Developed Spring)
**Address:** 3991 State Route 213
Steubenville, OH 43952

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MAR 27 2015

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WW-6A3
(1/12)

Operator Well No. Plum Run Unit 3H
Multiple Wells on the Hartley East Pad

# STATE OF WEST VIRGINIA
# DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
## NOTICE OF ENTRY FOR PLAT SURVEY

**Notice Time Requirement:** Notice shall be provided at least **SEVEN (7)** days but no more than **FORTY-FIVE (45)** days prior to entry

**Date of Notice:** 6/21/2013 **Date of Planned Entry:** 7/2/2013

**Delivery method pursuant to West Virginia Code § 22-6A-10a**

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

Pursuant to West Virginia Code § 22-6A-10(a), Prior to filing a permit application, the operator shall provide notice of planned entry on to the surface tract to conduct any plat surveys required pursuant to this article. Such notice shall be provided at least seven days but no more than forty-five days prior to such entry to: (1) The surface owner of such tract; (2) to any owner or lessee of coal seams beneath such tract that has filed a declaration pursuant to section thirty-six, article six, chapter twenty-two of this code; and (3) any owner of minerals underlying such tract in the county tax records. The notice shall include a statement that copies of the state Erosion and Sediment Control Manual and the statutes and rules related to oil and gas exploration and production may be obtained from the Secretary, which statement shall include contact information, including the address for a web page on the Secretary's web site, to enable the surface owner to obtain copies from the secretary.

**Notice is hereby provided to:**

☒ SURFACE OWNER(s)
Name: David Hartley
Address: HC 83 Box 207
Ellenboro, WV 26345
Name:
Address:
Name:
Address:

☐ COAL OWNER OR LESSEE
Name: NO DECLARATIONS ON RECORD WITH COUNTY
Address:

☒ MINERAL OWNER(s)
Name: PLEASE SEE ATTACHMENT
Address:

*please attach additional forms if necessary

**Notice is hereby given:**
Pursuant to West Virginia Code § 22-6A-10(a), notice is hereby given that the undersigned well operator is planning entry to conduct a plat survey on the tract of land as follows:

| | | | |
|---|---|---|---|
| State: | West Virginia | Approx. Latitude & Longitude: | 39.365283, -80.993061 |
| County: | Tyler | Public Road Access: | CR 6/8 |
| District: | Meade | Watershed: | Tributary of Brush Run |
| Quadrangle: | Pennsboro 7.5' | Generally used farm name: | Hartley, David M. |

Copies of the state Erosion and Sediment Control Manual and the statutes and rules related to oil and gas exploration and production may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450). Copies of such documents or additional information related to horizontal drilling may be obtained from the Secretary by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

**Notice is hereby given by:**

| | | | |
|---|---|---|---|
| Well Operator: | Antero Resources Corporation | Address: | 1615 Wynkoop Street |
| Telephone: | (303) 357-7310 | | Denver, CO 80202 |
| Email: | asteele@anteroresources.com | Facsimile: | 303-357-7315 |

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Office of Oil & Gas
MAR 27 2015

**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.

4709502248

## WW-6A3 Notice of Entry For Plat Survey Attachment:

### Mineral Owners:

**Owner:** Union National bank Trustee (S.A. Smith & C.B. Smith)
**Address:** PO Box 659
Wichita Falls, TX 76307

**Owner:** John W. Kerns Trust c/o Industry Consulting Group; Union National Bank Trustee (S.A. Smith & C.B. Smith)
**Address:** PO Box 659
Wichita Falls, TX 76307

**Owner:** David N. and Barbara E. Hartley
**Address:** HC 83 Box 207
Ellenboro, WV 26345

**Owner:** Wanda Hartley
**Address:** HC 83 Box 207
Ellenboro, WV 26345

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MAR 27 2015

4709502248

WW-6A5
(1/12)

Operator Well No. Plum Run Unit 3H

# 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:** 03/23/2015 **Date Permit Application Filed:** 03/23/2015

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

☒ CERTIFIED MAIL RETURN RECEIPT REQUESTED ☐ HAND 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: David M. Hartley
Address: 354 Brush Run Road
Ellenboro, WV 26346

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: | West Virginia | UTM NAD 83 | Easting: | 500,596m |
| County: | Tyler | | Northing: | 4,357,311m |
| District: | Meade | Public Road Access: | | CR 6/8 |
| Quadrangle: | Pennsboro 7.5' | Generally used farm name: | | Hartley, David M. |
| Watershed: | Outlet Middle Island Creek | | | |

**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 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

| | | | |
|---|---|---|---|
| Well Operator: | Antero Resources Corporation | Address: | 1615 Wynkoop Street |
| Telephone: | (303) 357-7310 | | Denver, CO 80202 |
| Email: | asteele@anteroresources.com | Facsimile: | 303-357-7315 |

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Office of Oil & Gas
MAR 27 2015

4709502248

WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

# Division of Highways

1900 Kanawha Boulevard East • Building Five • Room 110
Charleston, West Virginia 25305-0430 • (304) 558-3505

Earl Ray Tomblin
Governor

Paul A. Mattox, Jr., P. E.
Secretary of Transportation/
Commissioner of Highways

February 10, 2015

James A. Martin, Chief
Office of Oil and Gas
Department of Environmental Protection
601 57th Street, SE
Charleston, WV 25304

Subject: DOH Permit for the Hartley East Pad, Tyler County
Plum Run Unit 3H Well site

Dear Mr. Martin,

This well site will be accessed from a DOH permit 06-2013-0407 issued to Antero Resources Corporation for access to the State Road for a well site located off of Tyler County Route 6/8 SLS.

The operator has signed a STATEWIDE OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated January 3, 2012.

Very Truly Yours,

Gary K. Clayton

Gary K. Clayton, P.E.
Regional Maintenance Engineer
Central Office O&G Coordinator

Received
Office of Oil & Gas
MAR 27 2015

Cc: Ashlie Steele
Antero Resources Corporation
CH, OM, D-6
File

# List of Anticipated Additives Used for Fracturing or Stimulating Well

| Additives | Chemical Abstract Service Number (CAS #) |
|---|---|
| Fresh Water | 7732-18-5 |
| 2 Phosphobutane 1,2,4 tricarboxylic acid | 37971-36-1 |
| Ammonium Persulfate | 7727-54-0 |
| Anionic copolymer | proprietary |
| Anionic polymer | proprietary |
| BTEX Free Hydrotreated Heavy Naphtha | 64742-48-9 |
| Cellulase enzyme | (Proprietary) |
| Demulsifier Base | (Proprietary) |
| Ethoxylated alcohol blend | Mixture |
| Ethoxylated Nonylphenol | 68412-54-4 |
| Ethoxylated oleylamine | 26635-93-8 |
| Ethylene Glycol | 107-21-1 |
| Glycol Ethers | 111-76-2 |
| guar gum | 9000-30-0 |
| Hydrogen Chloride | 7647-01-0 |
| Hydrotreated light distillates, non-aromatic, BTEX free | 64742-47-8 |
| Isopropyl alcohol | 67-63-0 |
| liquid, 2,2-dibromo-3-nitrilopropionamide | 10222-01-2 |
| Microparticle | proprietary |
| Petroleum Distillates (BTEX Below Detect) | 64742-47-8 |
| Polyacrylamide | 57-55-6 |
| Propargyl Alcohol | 107-19-7 |
| Propylene Glycol | 57-55-6 |
| Quartz | 14808-60-7 |
| Sillica, crystalline quartz | 7631-86-9 |
| Sodium Chloride | 7647-14-5 |
| Sodium Hydroxide | 1310-73-2 |
| Sugar | 57-50-1 |
| Surfactant | 68439-51-0 |
| Suspending agent (solid) | 14808-60-7 |
| Tar bases, quinoline derivs, benzyl chloride-quaternized | 72480-70-7 |

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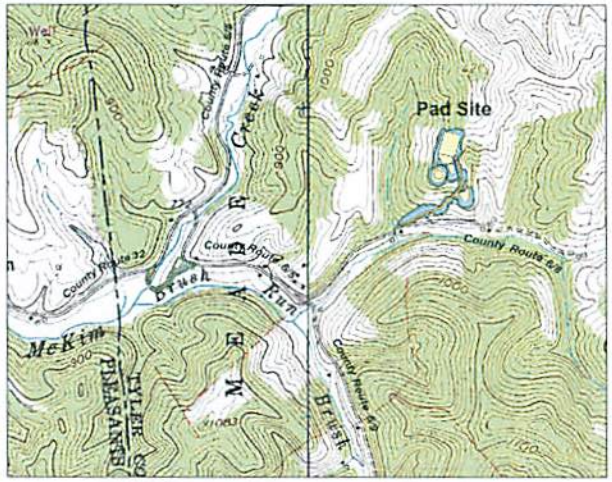
# HARTLEY EAST PAD
## SITE DESIGN, CONSTRUCTION PLAN, & EROSION & SEDIMENT CONTROL PLANS
## ANTERO RESOURCES CORPORATION

*West Virginia State Plane Coordinate System*
*North Zone, NAD83*
*Elevations Based on NAVD88*
*Established By Survey Grade GPS & OPUS*
*Post-Processing*




**Ellenboro and Pennsboro Quadrangles**

ANTERO RESOURCES

THIS DOCUMENT PREPARED FOR ANTERO RESOURCES CORP

APPROVED
WVDEP OOG
3/25/2015

API# 5902127
API# 9502185
API# 9502222
API# 9502246
API# 9502247
API# 9502248

***AFFECTED TAX PARCELS:***
*MEADE DISTRICT*

TM 12 - PCL 21
DAVID HARTLEY
DB 271/401
[illegible] ACRES

(Affected area from Proposed Access Road A = [illegible] Acres, [illegible] ft of Road A)
(Affected area from Proposed Access Road B = [illegible] Acres, [illegible] ft of Road B)
(Affected area from Proposed Access Road C = [illegible] Acres, [illegible] ft of Road C)
(Affected area from Proposed Water Containment Pad A = [illegible] Acres)
(Affected area from Proposed Well Pad = 2.42 Acres)
(Affected area from Proposed Production Equipment Pad = [illegible] Acres)
(Affected area from Proposed Excess Material Stockpile A = [illegible] Acres)
(Affected area from Proposed Excess Material Stockpile B = [illegible] Acres)

TM 12 - PCL 12
DAVID HARTLEY
DB 271/401
[illegible] ACRES

(Affected area from Proposed Well Pad = [illegible] Acres)

TM 12 - PCL 21.1
JASON M. HARTLEY
DB [illegible]
1.0 ACRE

(Affected area from Proposed Access Road A = [illegible] Acres, [illegible] ft of Road A)

TM 12 - PCL 23
DAVID HARTLEY
DB 271/401
125 ACRES

(Affected area from Proposed Access Road A = [illegible] Acres, [illegible] ft of Road A)
(Affected area from Proposed Entrance Road A = [illegible] Acres, [illegible] ft of Entrance Rd A)

TM 12 - PCL 26
DAVID HARTLEY
DB 271/401
110 ACRES

(Affected area from Proposed Entrance Road A = [illegible] Acres, [illegible] ft of Entrance Rd A)
(Affected area from Proposed Water Containment Pad B = [illegible] Acres)

| WELL TABLE | | | | | |
|---|---|---|---|---|---|
| Well Name & Number | API Number | NAD83 | NAD27 | UTM Zone 17 | LAT & LON - NAD83 |
| Woodworth Unit 1H | | N: 318,725.69<br>E: 1,546,404.28 | N: 318,692.09<br>E: 1,577,845.28 | N: 4,357,331.581<br>E: 500,601.047 | LAT: 39°21'55.591"<br>LON: -80°59'34.921" |
| Woodworth Unit 2H | | N: 318,716.29<br>E: 1,546,401.60 | N: 318,682.46<br>E: 1,577,842.59 | N: 4,357,328.633<br>E: 500,600.279 | LAT: 39°21'55.495"<br>LON: -80°59'34.953" |
| Woodworth Unit 3H | | N: 318,706.63<br>E: 1,546,398.91 | N: 318,672.83<br>E: 1,577,839.91 | N: 4,357,325.686<br>E: 500,599.509 | LAT: 39°21'55.400"<br>LON: -80°59'34.986" |
| Freeland Unit 1H | | N: 318,696.99<br>E: 1,546,396.23 | N: 318,663.19<br>E: 1,577,837.23 | N: 4,357,322.735<br>E: 500,598.741 | LAT: 39°21'55.304"<br>LON: -80°59'35.018" |
| Freeland Unit 2H | 095-02127 | N: 318,687.36<br>E: 1,546,393.54 | N: 318,653.56<br>E: 1,577,834.54 | N: 4,357,319.788<br>E: 500,597.971 | LAT: 39°21'55.209"<br>LON: -80°59'35.082" |
| Plum Run Unit 1H | | N: 318,677.73<br>E: 1,549,390.86 | N: 318,643.93<br>E: 1,577,832.88 | N: 4,357,316.841<br>E: 500,597.203 | LAT: 39°21'55.113"<br>LON: -80°59'35.082" |
| Plum Run Unit 2H | | N: 318,668.10<br>E: 1,546,388.17 | N: 318,634.30<br>E: 1,577,829.17 | N: 4,357,313.893<br>E: 500,596.433 | LAT: 39°21'55.017"<br>LON: -80°59'35.114" |
| Plum Run Unit 3H | | N: 318,658.46<br>E: 1,546,385.48 | N: 318,624.66<br>E: 1,577,826.48 | N: 4,357,310.943<br>E: 500,595.662 | LAT: 39°21'54.922<br>LON: -80°59'35.146" |
| Empty | | N: 318,648.83<br>E: 1,546,382.80 | N: 318,615.05<br>E: 1,577,823.82 | N: 4,357,307.999<br>E: 500,594.902 | LAT: 39°21'54.833"<br>LON: -80°59'35.139" |

## Project Contacts

Antero Resources

Tom Wince - Construction
304-869-3405 - Off. 304-483-0933 - Cell

Eli Wagoner, Environmental Engineer
304-622-3842 ext 311 - Off. 304-476-9770 - Cell

John Kawcak, Engineer
817-368-1553

Aaron Kunzler, Construction Supervisor
405-227-8344

Roger Dunlap, Survey Coordinator
304-622-3842 - Off. 304-651-5888 - Cell

Engineer & Surveyor

Dewayne N. Hannah, PE, PS
Hannah Engineering
304-636-7777 - Off. 304-642-9333 - Cell

Wetland Delineator

Timothy R. Ferguson, M.S.
Potesta & Associates, Inc.
304-342-1400 - Off. 304-382-8217 - Cell

### Well Location Restrictions:

All Pad construction complies with the following restrictions:

*250' from an existing well or developed spring used for human or domestic animals

*650' from occupied dwelling or barn greater than 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 a naturally producing trout stream

*1000' of a surface or ground water intake to a public water supply

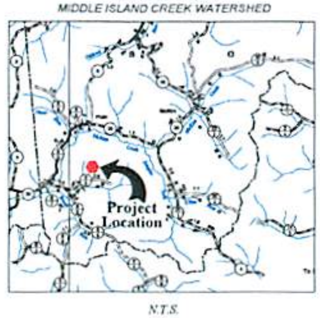
*FEMA Map Panel - **54095C0275C The selection site is not in any identified flood hazard area per WV Flood Tool.

| SITE LOCATIONS<br>NAD83 | | |
|---|---|---|
| Center of Well Pad (UTM Meters) | N = 4,357,318.118 | E = 500,595.466 |
| Center of Water Containment Pad A (UTM Meters) | N = 4,357,168.196 | E = 500,354.694 |
| Begin Acc. Road A (UTM Meters) | N = 4,358,999.851 | E = 500,403.025 |
| Begin Ent. Road A (UTM Meters) | N = 4,356,825.979 | E = 499,391.263 |
| | LATITUDE | LONGITUDE |
| Center of Well Pad | N = 39.365327 | W = 80.993076 |
| Center of Water Containment Pad A | N = 39.364242 | W = 80.993561 |
| Begin Access Road A | N = 39.362454 | W = 80.995321 |
| Begin Entrance Road A | N = 39.360888 | W = 81.007066 |

| LOD Area (ac) | | | | | | |
|---|---|---|---|---|---|---|
| Original Permitted LOD - 11/18/13 | | Revised Permitted LOD - 1/30/2014 | | Modified LOD | | Changes |
| Description | Acres | Description | Acres | Description | Acres | Acres |
| Entrance Road A | 1.70 | Entrance Road A | 1.70 | Entrance Road A | 1.70 | Unchanged |
| Water Containment Pad B | 0.53 | Water Containment Pad B | 0.53 | Water Containment Pad B | 0.53 | Unchanged |
| Access Road A | 3.03 | Access Road A | 3.00 | Access Road A | 3.00 | Unchanged |
| Access Road B | 0.09 | Access Road B | 0.06 | Access Road B | 0.06 | Unchanged |
| Access Road C | 0.09 | Access Road C | 0.28 | Access Road C | 0.28 | Unchanged |
| | | Excess Material Stockpile B | 0.73 | Excess Material Stockpile B | 0.73 | Unchanged |
| Production Equipment Pad | 0.81 | Production Equipment Pad | 0.63 | Production Equipment Pad | 0.63 | Unchanged |
| Well Pad | 2.58 | Well Pad | 2.58 | Well Pad | 2.58 | Unchanged |
| Water Containment Pad A | 1.59 | Water Containment Pad A | 1.33 | Water Containment Pad A | 1.33 | Unchanged |
| Excess Material Stockpile | 0.93 | Excess Material Stockpile A | 1.22 | Excess Material Stockpile A | 1.31 | +0.09 |
| Topsoil Stockpile | 0.11 | | | | | |
| Total | 12.51 | Total | 12.99 | Total | 13.08 | +0.09 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Wooded | 5.15 | Wooded | 5.63 | Wooded | 5.72 | +0.09 |
| Non-Wooded | 7.36 | Non-Wooded | 7.36 | Non-Wooded | 7.36 | Unchanged |
| Total | 12.51 | Total | 12.99 | Total | 13.08 | +0.09 |

*MEADE DISTRICT*
*TYLER COUNTY, WV*
*MIDDLE ISLAND CREEK WATERSHED*




*N.T.S.*

*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 35CSR8. The information reflects a temporary water containment pad. The computed above grade storage volume is 22,000 barrels or 2.84 acre ft., filling method is pumped.*

*DRAWING INDEX*

| | |
|---|---|
| 1 | COVER SHEET |
| 2 | SCHEDULE OF QUANTITIES |
| 3 | CONSTRUCTION, EROSION & SEDIMENT CONTROL NOTES |
| 4 | EXISTING CONDITIONS |
| 5 | OVERALL SITE PLAN INDEX |
| 6-7 | ROAD PLAN & PROFILES |
| 8 | SITE PLAN |
| 9 | ROAD SECTIONS |
| 10-11 | WELL PAD & WATER CONTAINMENT PAD PROFILE & SECTIONS |
| 12 | BRIDGE PLANS |
| 13 | TOPSOIL STORAGE AREA |
| 14-17 | DETAILS |
| 18 | RECLAMATION PLAN |

D. N. Hannah

DEWAYNE N. HANNAH P.E. No. WV - 7233; P.S. No. WV - 1213

Hartley East PAD
PROJECT

11-4-2014
DATE

| FLOODPLAIN CONDITIONS | |
|---|---|
| DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN FLOODPLAIN: | NO |
| PERMIT NEEDED FOR FLOODPLAIN COORDINATOR | NO |
| HEC-RAS STUDY COMPLETED: | N/A |
| DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN FLOODPLAIN: | N/A |
| FIRM MAP NUMBER(S) FOR SITE: | 54095C0275C |
| ACREAGE OF CONSTRUCTION IN FLOODPLAIN: | N/A |

*Antero Resources will obtain an Encroachment Permit (Form MM-109) from the West Virginia Department of Transportation Division of Highways, prior to commencement of construction activities.*

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

811
Know what's **below.**
**Call** before you dig.

MISS Utility will be contacted prior to the start of the project. MISS Utility was notified for the locating of utilities for the project prior to the project design. The MISS Utility ticket number is: 1234595656 - *Notified 12/10/12*

| DATE: | REVISIONS: |
|---|---|
| FEB 21, 2013 | Change Landowner to Jason M. Hartley |
| APR. 22, 2013 | Update Stream Impacts/Forested Area |
| MAY 20, 2013 | Revised Road Grade |
| MAY 20, 2013 | Standard Quantity Sheet Added |
| MAY 20, 2013 | Revised Sump & Details Sheet Added |
| MAY 29, 2013 | Various Minor Changes |
| JUNE 24, 2013 | Well Layout & OT Revisions |
| JULY 29, 2013 | Renamed Freeland Units |
| AUG 1, 2013 | Misc. Revisions |
| AUG. 20, 2013 | Water Tank Pad |
| AUG. 28, 2013 | Revised Quantities |
| AUG. 30, 2013 | Structure Name Changes |
| OCT. 2, 2013 | Relocated Entrance Road A |
| NOV. 18, 2013 | Per DEP Review |
| JAN. 13, 2014 | Modifications to Prod. Eq. & Water Cont. Pads |
| JAN. 30, 2014 | Modified Per DEP |
| APRIL 8, 2014 | Add Topsoil Area |
| APRIL 24, 2014 | Rename Wells |
| APRIL 28, 2014 | Rename Wells |
| NOV. 4, 2014 | As Built |

HANNAH ENGINEERING
ELKINS, WV
304-636-7777

**AS BUILT**

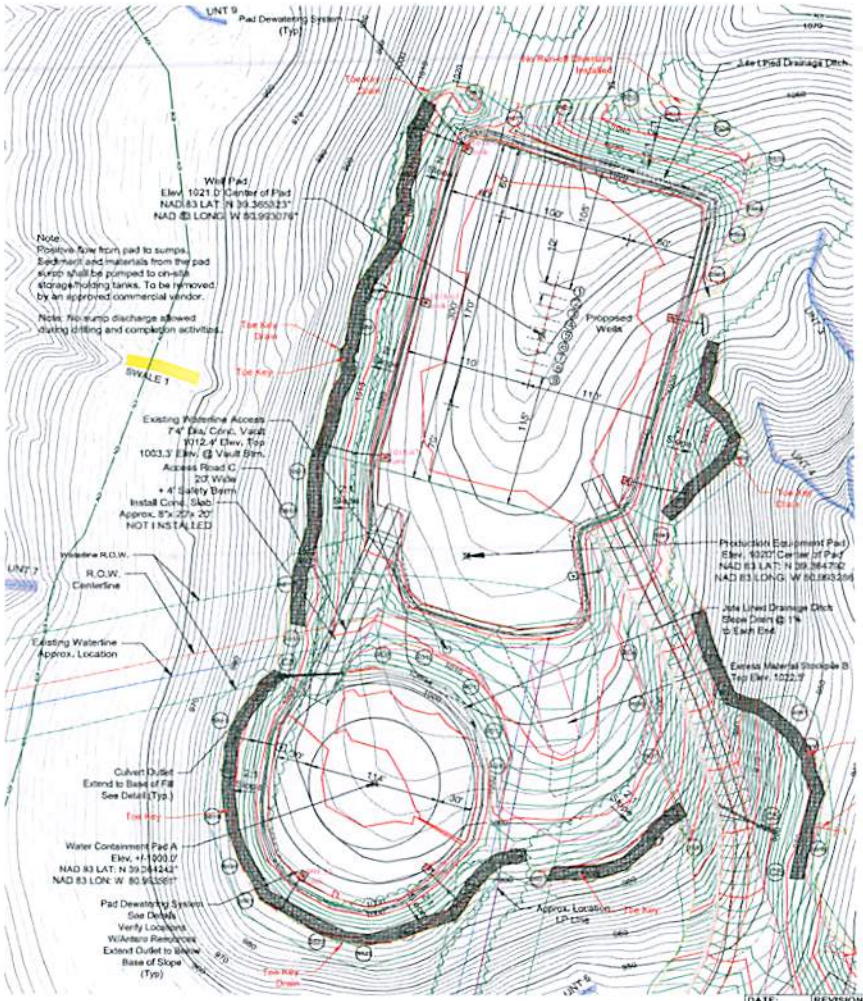
**ANTERO RESOURCES**

**HARTLEY EAST PAD**
**COVER SHEET**

| MEADE DISTRICT | | | | TYLER COUNTY, WV |
|---|---|---|---|---|
| DATE:<br>DEC 28, 2012 | SCALE:<br>AS SHOWN | JOB NO:<br>12 ARAC 01 | DRAWN BY:<br>JERRI REED | SHEET 1<br>OF 18 SHEETS |

electronic version of these plans may be viewed at: Q:\OIL GAS\SAY FILES\REVIEWS\

APPROVED
WVDEP OOG
3/25/2015




Silt Socks Shown
As Built Locations

Culverts Shown
As Built Locations

Toe Keys and All Fill Material
Placed in 12" Lifts
@>95% Compaction
Based on a Standard Proctor

Toe Keys and All Fill Material
Placed in 12" Lifts
@>95% Compaction
Based on a Standard Proctor
Fill Keyways, Benchs, and
Drainage As Built per PS&R
Drawing 14-###-b1 shown
following Reclamation Plan

Colluvial Material removed to
Spoil Area and reworked into
Spoil Pile.

Pad Dewatering System
Shown As Built

Well Pad & Water Containment Pad
$1\frac{1}{2}$" - 2" of $1\frac{1}{2}$" Crusher Run on
8" - 12 " of 3" - 5" Stone on
US200 Geotextile Fabric on
12" FDR Soil

| PROPOSED WELLS | |
|---|---|
| 1. Woodworth Unit | 1H |
| 2. Woodworth Unit | 2H |
| 3. Woodworth Unit | 3H |
| 4. Freeland Unit | 1H |
| 5. Freeland Unit | 2H |
| 6. Plum Run Unit | 1H |
| 7. Plum Run Unit | 2H |
| 8. Plum Run Unit | 3H |
| 9. Empty | |

ANTERO RESOURCES

THIS DOCUMENT
PREPARED FOR
ANTERO RESOURCES CORP

| Modified LOD Area (Acres) | |
|---|---|
| Description | Acres |
| Ent. Road A | 1.70 |
| Water Containment Pad B | 0.53 |
| Access Road A | 3.60 |
| Access Road B | 0.09 |
| Access Road C | 0.28 |
| Excess Material Stockpile B | 0.73 |
| Production Eq.Pad | 0.63 |
| Well Pad | 2.68 |
| Water Containment Pad A | 1.33 |
| Excess Material Stockpile A | 1.31 |
| Totals | 13.08 |
| Wooded | 5.72 |
| Non-Wooded | 7.36 |
| Totals | 13.08 |

N
WV NAD 83 NORTH FEET

LEGEND

- Proposed Road 2' Contour
- Proposed Road 10' Contour
- Proposed Pad and/or Pit 2' Contour
- Proposed Pad and /or Pit 10' Contour
- Existing 2' Contour
- Existing 10' Contour
- LOD Limit of Disturbance
- AOI Area of Influence
- Guard Rail
- Rock Rip-rap Ditch
- TRM Lined Ditch
- Direction of Flow
- Sheet Piling
- Silt Sock
- Run-off Diversion
- Level Spreader
- Culvert w/ Riprap
- Existing Culvert
- Existing Overhead Electric (Single Phase)
- Existing Gaslines
- Ephemeral Stream
- Intermittent Stream
- Perennial Stream
- Swale/Gully
- Ditch
- Wetland/Pond
- Toe Key

HARTLEY EAST PAD
SITE PLAN
PADS
ANTERO RESOURCES
CORPORATION

SCALE: 1" = 50'
0 50 100 150

| DATE: | REVISIONS: |
|---|---|
| FEB.21, 2013 | Change Landowner to Jason M. Hartley |
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| MAY 20, 2013 | Revised Road Grade |
| MAY 20, 2013 | Standard Quantity Sheet Added |
| MAY 20, 2013 | Revised Sump & Details Sheet Added |
| MAY 29, 2013 | Various Minor Changes |
| June 28, 2013 | Well Layout & QC Revisions |
| JULY 29, 2013 | Reversed Freeland Units |
| AUG.1, 2013 | Misc. Revisions |
| AUG. 20, 2013 | Water Tank Pad |
| AUG. 28, 2013 | Revised Quantities |
| AUG. 30, 2013 | Structure Name Changes |
| OCT. 2, 2013 | Relocated Entrance Road A |
| NOV.18, 2013 | Per DEP Review |
| JAN.13, 2014 | Modifications to Prod.Eq.& Water Cont.Pads |
| JAN 30, 2014 | Modifications per DEP |
| APR.9, 2014 | Added Topsoil Area |
| APR.24, 2014 | Renamed Wells |
| APR.28, 2014 | Renamed Wells |
| NOV.4, 2014 | As Built |

AS BUILT

HANNAH ENGINEERING
ELKINS, WV
304-636-7777

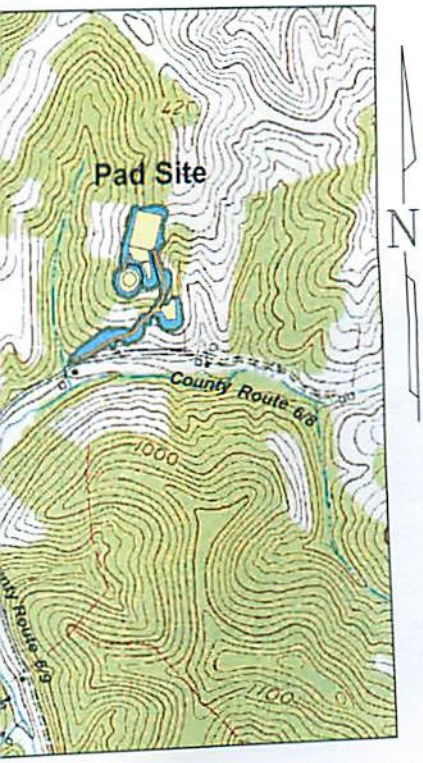
ANTERO RESOURCES

HARTLEY EAST PAD
SITE PLAN
PADS

MEADE DISTRICT — TYLER COUNTY, WV

| DATE: | SCALE: | JOB NO: | DRAWN BY: | SHEET 5 OF 18 SHEETS |
|---|---|---|---|---|
| DEC.28, 2012 | 1"=50' | 12 ARAC 01 | DAN GRIMM | |

# ST PAD
# CTION PLAN, &
# CONTROL PLANS
# CORPORATION




oro Quadrangles

**ANTERO RESOURCES**

THIS DOCUMENT PREPARED FOR ANTERO RESOURCES CORP

***AFFECTED TAX PARCELS:***
*MEADE DISTRICT*

*TM 12 - PCL. 21*
*DAVID HARTLEY*
*DB 271/421*
*28 ACRES*

*(Affected area from Proposed Access Road A = 3.60 Acres, 1,349 ft of Road A)*
*(Affected area from Proposed Access Road B = 0.09 Acre, 101 ft of Road B)*
*(Affected area from Proposed Access Road C = 0.28 Acre, 338 ft of Road C)*
*(Affected area from Proposed Water Containment Pad A = 1.33 Acres)*
*(Affected area from Proposed Well Pad = 2.42 Acres)*
*(Affected area from Proposed Production Equipment Pad = 0.63 Acre)*
*(Affected area from Proposed Excess Material Stockpile A = 1.31 Acre)*
*(Affected area from Proposed Excess Material Stockpile B = 0.73 Acre)*

*TM 12 - PCL. 12*
*DAVID HARTLEY*
*DB 271/421*
*46 ACRES*

*(Affected area from Proposed Well Pad = 0.26 Acre)*

*TM 12 - PCL. 21.1*
*JASON M. HARTLEY*
*DB 404/513*
*1.0 ACRE*

*(Affected area from Proposed Access Road A = 0.12 Acre, 33 ft of Road A)*

*TM 12 - PCL. 23*
*DAVID HARTLEY*
*DB 271/421*
*125 ACRES*

*(Affected area from Proposed Access Road A = 0.08 Acre, 0 ft of Road A)*
*(Affected area from Proposed Entrance Road A = 0.02 Acres, 0 ft of Entrance Rd A)*

*TM 12 - PCL. 26*
*DAVID HARTLEY*
*DB 271/421*
*110 ACRES*

*(Affected area from Proposed Entrance Road A = 1.68 Acres, 1024 ft of Entrance Rd A)*
*(Affected area from Proposed Water Containment Pad B = 0.53 Acre)*

Michael Daff
3/26/15

*DRAWING INDEX*


1 COVER SHEET
2 SCHEDULE OF QUANTITIES
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13 TOPSOIL STORAGE AREA
14-17 DETAILS
18 RECLAMATION PLAN


*LOD Area (ac)*

| Original Permitted LOD - 11/18/13 | | Revised Permitted LOD - 1/30/2014 | | Modified LOD | | Changes |
|---|---|---|---|---|---|---|
| Description | Acres | Description | Acres | Description | Acres | Acres |
| Entrance Road A | 1.70 | Entrance Road A | 1.70 | Entrance Road A | 1.70 | Unchanged |
| Water Containment Pad B | 0.53 | Water Containment Pad B | 0.53 | Water Containment Pad B | 0.53 | Unchanged |
| Access Road A | 3.83 | Access Road A | 3.80 | Access Road A | 3.80 | Unchanged |
| Access Road B | 0.09 | Access Road B | 0.09 | Access Road B | 0.09 | Unchanged |
| Access Road C | 0.09 | Access Road C | 0.28 | Access Road C | 0.28 | Unchanged |
| | | Excess Material Stockpile B | 0.73 | Excess Material Stockpile B | 0.73 | Unchanged |
| Production Equipment Pad | 0.91 | Production Equipment Pad | 0.63 | Production Equipment Pad | 0.63 | Unchanged |
| Well Pad | 2.66 | Well Pad | 2.68 | Well Pad | 2.68 | Unchanged |
| Water Containment Pad A | 1.69 | Water Containment Pad A | 1.33 | Water Containment Pad A | 1.33 | Unchanged |
| Excess Material Stockpile | 0.90 | Excess Material Stockpile A | 1.22 | Excess Material Stockpile A | 1.31 | +0.09 |
| Topsoil Stockpile | 0.11 | | | | | |
| Totals | 12.51 | Totals | 12.99 | Totals | 13.08 | +0.09 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Wooded | 5.15 | Wooded | 5.63 | Wooded | 5.72 | +0.09 |
| Non-Wooded | 7.36 | Non-Wooded | 7.36 | Non-Wooded | 7.36 | Unchanged |
| Totals | 12.51 | Totals | 12.99 | Totals | 13.08 | +0.09 |

*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 35CSR8. The information reflects a temporary water containment pad. The computed above grade storage volume is 22,000 barrels or 2.84 acre ft., filling method is pumped.*

DEWAYNE N. HANNAH LICENSED No. 1213 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

D N Hannah

**DEWAYNE N. HANNAH P.E. No. WV - 7233; P.S. No. WV - 1213**

Received
Office of Oil & Gas
MAR 27 2015

Hartley East Pad
**PROJECT**

DEWAYNE N. HANNAH REGISTERED NO. 7233 STATE OF WEST VIRGINIA PROFESSIONAL ENGINEER

11-4-2014
**DATE**

**AS BUILT**

| DATE: | REVISIONS: |
|---|---|
| FEB. 21, 2013 | Change Landowner to Jason M. Hartley |
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**HANNAH ENGINEERING**
*ELKINS, WV*
*304-636-7777*

**ANTERO RESOURCES**

**HARTLEY EAST PAD**
**COVER SHEET**

*MEADE DISTRICT* *TYLER COUNTY, WV*

| DATE: | SCALE: | JOB NO: | DRAWN BY: | SHEET 1 |
|---|---|---|---|---|
| DEC 28, 2012 | AS SHOWN | 12 ARAC 01 | JERRI REED | OF 18 SHEETS |