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**west virginia** department of environmental protection

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

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

November 20, 2013

**WELL WORK PERMIT**

**Horizontal 6A Well**

This permit, API Well Number: 47-1706373, 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: ANNE UNIT 1H  
Farm Name: SPENCER, DENZIL C. ., ET AL  
**API Well Number: 47-1706373**  
**Permit Type: Horizontal 6A Well**  
Date Issued: 11/20/2013

# PERMIT CONDITIONS

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

## CONDITIONS

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1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACOE). Through this permit, you are hereby being advised to consult with USACOE 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 fill material shall be within plus or minus 2% of the optimum moisture content as determined by the standard proctor density test, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort. Each lift must meet 95 % compaction of the optimum density based on results from the standard proctor density test of the actual soils used in specific engineered fill sites. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
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.

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WW - 6B  
(3/13)

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

17-03 611

1) Well Operator: Antero Resources Corporation 494488557 017-Doddridge Grant Smithburg 7.5'  
Operator ID County District Quadrangle

2) Operator's Well Number: Anne Unit 1H Well Pad Name: Misery Pad

3 Elevation, current ground: ~1015 Elevation, proposed post-construction: 1001'

4) Well Type: (a) Gas  Oil  Underground Storage

Other \_\_\_\_\_  
(b) If Gas: Shallow  Deep   
Horizontal

5) Existing Pad? Yes or No: No

6) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):

Marcellus Shale: 7400' TVD, Anticipated Thickness- 55 Feet, Associated Pressure- 2950#

7) Proposed Total Vertical Depth: 7400' TVD

8) Formation at Total Vertical Depth: Marcellus Shale

9) Proposed Total Measured Depth: 17,700' MD

10) Approximate Fresh Water Strata Depths: 431', 445'

11) Method to Determine Fresh Water Depth: Offset well records. Depths have been adjusted according to surface elevations.

12) Approximate Saltwater Depths: 1339', 1637', 1836'

13) Approximate Coal Seam Depths: 268'

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

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

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

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

17) Describe fracturing/stimulating methods in detail:

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

18) Total area to be disturbed, including roads, stockpile area, pits, etc, (acres): 16.82 acres

19) Area to be disturbed for well pad only, less access road (acres): 5.76 acres

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20)

CASING AND TUBING PROGRAM

| TYPE         | Size    | New or Used | Grade     | Weight per 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#     | 510'                  | 510'                    | CTS, 708 Cu. Ft.           |
| Coal         | 9-5/8"  | New         | J-55      | 36#            | 2480'                 | 2480'                   | CTS, 1010 Cu. Ft.          |
| Intermediate |         |             |           |                |                       |                         |                            |
| Production   | 5-1/2"  | New         | P-110     | 20#            | 17700'                | 17700'                  | 4466 Cu. Ft.               |
| Tubing       | 2-3/8"  | New         | N-80      | 4.7#           |                       | 7100'                   |                            |
| Liners       |         |             |           |                |                       |                         |                            |

DCW  
9-30-2013

| TYPE         | Size    | Wellbore Diameter | Wall Thickness | Burst Pressure | Cement Type           | Cement Yield       |
|--------------|---------|-------------------|----------------|----------------|-----------------------|--------------------|
| 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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21) Describe centralizer placement for each casing string.

Conductor: no centralizers

Surface Casing: one centralizer 10' above the float shoe, one on the insert float collar and one every 4th joint spaced up the hole to surface.

Intermediate Casing: one centralizer above float joint, one centralizer 5' above float collar and one every 4th collar to surface.

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

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

Conductor: no additives, Class A cement.

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

Intermediate: Class A cement with 1/4 lb of flake, 5 gallons of clay treat

Production: Lead cement- 50/50 Class H/Poz + 1.5% salt + 1% C-45 + 0.5% C-16a + 0.2% C-12 + 0.45% C-20 + 0.05% C-51

Production: Tail cement- Class H + 45 PPS Calcium Carbonate + 1.0% FL-160 + 0.2% ACGB-47 + 0.05% ACSA-51 + 0.2% ACR-20

23) Proposed borehole conditioning procedures.

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

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

Intermediate: blowhole clean with air, trip to surface casing shoe, trip to bottom, blowhole clean with air, trip out, run casing, circulate 40 bbls brine water followed by 10 bbls fresh water and 25 bbls bentonite mud, pump 10 bbls fresh water.

Production: circulate with 14 lb/gal NaCl mud, trip to middle of lateral, circulate, pump high viscosity sweep, trip to base of curve, pump high viscosity sweep, trip to top of curve, trip to bottom, circulate, pump high viscosity sweep, trip out, run casing, circulate 10 bbls fresh water, pump 48 bbls barite pill, pump 10 bbls fresh water followed by 48 bbls mud flush and 10 bbls water.

\*Note: Attach additional sheets as needed.

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STATE OF WEST VIRGINIA - 17 06373  
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) Tributary of Little Flint Run Quadrangle Smithburg 7.5'

Elevation 1001' County Doddridge District Grant

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

Will a pit be used for drill cuttings? Yes \_\_\_\_\_ No X  
If so, please describe anticipated pit waste: tanked and hauled off site. (Drilling and Flowback Fluids will be stored in tanks. Cuttings will be)

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

Proposed Disposal Method For Treated Pit Wastes:

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

*DCW  
9-30-2013*

Will closed loop system be used? Yes \_\_\_\_\_

Drilling medium anticipated for this well? Air, freshwater, oil based, etc. Surface - Air/Freshwater, Intermediate - Dust/Suff 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)

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 [Signature]

Company Official (Typed Name) Gerard G. Alberts

Company Official Title Environmental & Regulatory Manager

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Subscribed and sworn before me this 2 day of Sept

[Signature]

20 13 LISA BOTTINELLI  
Notary Public 2013  
State of Colorado  
Notary ID 20124072365  
My Commission Expires Nov 9, 2016

My commission expires 11/9/2016

11/22/2013

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Form WW-9

Operator's Well No. Anne Unit 1H

**Antero Resources Corporation**

Proposed Revegetation Treatment: Acres Disturbed 18.62 Prevegetation pH \_\_\_\_\_

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

Fertilizer (10-20-20 or equivalent) 500 lbs/acre (500 lbs minimum) Hay or straw or Wood Fiber (will be used where needed)

Mulch 2-3 Tons/acre

Access Road A (2.92) + Access Road B (.82) + Drill Pad (5.76) + Tank Pad (1.60) + Excess/Topsoil Material Stockpiles (7.52) = 18.62 Acres  
Seed Mixtures

| Seed Type                                                                  | Area I (Temporary)<br>lbs/acre |
|----------------------------------------------------------------------------|--------------------------------|
| <u>Annual Ryegrass</u>                                                     | <u>40</u>                      |
| *See attached Table 3 for additional seed type (Misery Pad Design Page 16) |                                |
| *or type of grass seed requested by surface owner                          |                                |

| Seed Type                                                                   | Area II (Permanent)<br>lbs/acre |
|-----------------------------------------------------------------------------|---------------------------------|
| <u>Tall Fescue</u>                                                          | <u>30</u>                       |
| *See attached Table 4a for additional seed type (Misery Pad Design Page 16) |                                 |
| *or type of grass seed requested by surface owner                           |                                 |

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Douglas Newlon

Comments: Preseed + Mulch install ETS to WU  
Per regulations

Title: Oil & Gas Inspector

Date: 9-30-2013

Field Reviewed?  Yes  No

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## Water Management Plan: Primary Water Sources



WMP-01501

API/ID Number: 047-017-06373

Operator:

Antero Resources

Anne Unit 1H

### Important:

For each proposed primary water source (including source intakes for purchased water sources) identified in your water management plan, and summarized herein, DEP has made an evaluation concerning water availability over the specified date range. DEP's assessment is based on the following considerations:

- Statistical analysis of historical USGS stream gauge data (transferred to un-gauged locations as necessary);
- Identification of sensitive aquatic life (endangered species, mussels, etc.);
- Quantification of known existing demands on the water supply (Large Quantity Users);
- Minimum flows required by the Army Corps of Engineers; and
- Designated stream uses.

Based on these factors, DEP has provided, for each intake location (and origination point for purchased water), a reference gauge location and discharge flow reading which must be surpassed prior to withdrawals. Additionally, DEP has established a minimum passby flow at the withdrawal location which must also be surpassed prior to withdrawals. These thresholds are considered terms of the permit and are enforceable as such.

**DEP is aware that some intake points will be used for multiple wells and well sites. In these cases, the thresholds set by the Water Management Plan are to be interpreted as total withdrawal limits for each location over the specified date range regardless of how many wells are supported by that intake.**

For all purchased water intakes, determinations of water availability are made at the original source intake location. It is the responsibility of the Oil and Gas Operator, not the seller, to cease withdrawal of water from the seller when flows are less than the minimum gauge reading at the stream gauge referenced by the Water Management Plan in order to protect stream uses.

Note that the determinations made herein are based on the best available data, but it is impossible to predict water availability in the future. While the DEP has carefully established these minimum withdrawal thresholds, it remains the operator's responsibility to protect aquatic life at all times. Approval to withdrawal is contingent upon permission from the land owner. It is the responsibility of the operator to secure and maintain permission prior to any withdrawals.

The operator is reminded that 24-48 hours prior to withdrawing (or purchasing) water, DEP must be notified by email at [DEP.water.use@wv.gov](mailto:DEP.water.use@wv.gov).

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## Source Summary

WMP-01501

API Number:

047-017-06373

Operator:

Antero Resources

Anne Unit 1H

### Stream/River

● Source **Ohio River @ Ben's Run Withdrawal Site** Tyler Owner: **Ben's Run Land Company Limited Partnership**

| Start Date | End Date  | Total Volume (gal) | Max. daily purchase (gal) | Intake Latitude: | Intake Longitude: |
|------------|-----------|--------------------|---------------------------|------------------|-------------------|
| 11/1/2013  | 11/1/2014 | 13,214,800         |                           | 39.46593         | -81.110781        |

Regulated Stream? Ohio River Min. Flow Ref. Gauge ID: 9999999 Ohio River Station: Willow Island Lock & Dam

Max. Pump rate (gpm): **3,360** Min. Gauge Reading (cfs): **6,468.00** Min. Passby (cfs)

DEP Comments: Refer to the specified station on the National Weather Service's Ohio River forecast website: <http://www.erh.noaa.gov/ohrfc//flows.shtml>

● Source **West Fork River @ JCP Withdrawal** Harrison Owner: **James & Brenda Raines**

| Start Date | End Date  | Total Volume (gal) | Max. daily purchase (gal) | Intake Latitude: | Intake Longitude: |
|------------|-----------|--------------------|---------------------------|------------------|-------------------|
| 11/1/2013  | 11/1/2014 | 13,214,800         |                           | 39.320913        | -80.337572        |

Regulated Stream? Stonewall Jackson Dam Ref. Gauge ID: 3061000 WEST FORK RIVER AT ENTERPRISE, WV

Max. Pump rate (gpm): **2,000** Min. Gauge Reading (cfs): **175.00** Min. Passby (cfs) **146.25**

DEP Comments:

● Source **West Fork River @ McDonald Withdrawal** Harrison Owner: **David Shrieves**

| Start Date | End Date  | Total Volume (gal) | Max. daily purchase (gal) | Intake Latitude: | Intake Longitude: |
|------------|-----------|--------------------|---------------------------|------------------|-------------------|
| 11/1/2013  | 11/1/2014 | 13,214,800         |                           | 39.16761         | -80.45069         |

Regulated Stream? Stonewall Jackson Dam Ref. Gauge ID: 3061000 WEST FORK RIVER AT ENTERPRISE, WV

Max. Pump rate (gpm): **3,000** Min. Gauge Reading (cfs): **175.00** Min. Passby (cfs) **106.30**

DEP Comments:

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● Source **West Fork River @ GAL Withdrawal** Harrison Owner: **David Shrieves**

|            |           |                    |                           |                  |                   |
|------------|-----------|--------------------|---------------------------|------------------|-------------------|
| Start Date | End Date  | Total Volume (gal) | Max. daily purchase (gal) | Intake Latitude: | Intake Longitude: |
| 11/1/2013  | 11/1/2014 | 13,214,800         |                           | 39.16422         | -80.45173         |

Regulated Stream? **Stonewall Jackson Dam** Ref. Gauge ID: **3061000** **WEST FORK RIVER AT ENTERPRISE, WV**

**Max. Pump rate (gpm): 2,000** **Min. Gauge Reading (cfs): 175.00** **Min. Passby (cfs) 106.30**

DEP Comments:

● Source **Middle Island Creek @ Mees Withdrawal Site** Pleasants Owner: **Sarah E. Mees**

|            |           |                    |                           |                  |                   |
|------------|-----------|--------------------|---------------------------|------------------|-------------------|
| Start Date | End Date  | Total Volume (gal) | Max. daily purchase (gal) | Intake Latitude: | Intake Longitude: |
| 11/1/2013  | 11/1/2014 | 13,214,800         |                           | 39.43113         | -81.079567        |

Regulated Stream? Ref. Gauge ID: **3114500** **MIDDLE ISLAND CREEK AT LITTLE, WV**

**Max. Pump rate (gpm): 3,360** **Min. Gauge Reading (cfs): 52.59** **Min. Passby (cfs) 47.63**

DEP Comments:

● Source **Middle Island Creek @ Dawson Withdrawal** Tyler Owner: **Gary D. and Rella A. Dawson**

|            |           |                    |                           |                  |                   |
|------------|-----------|--------------------|---------------------------|------------------|-------------------|
| Start Date | End Date  | Total Volume (gal) | Max. daily purchase (gal) | Intake Latitude: | Intake Longitude: |
| 11/1/2013  | 11/1/2014 | 13,214,800         |                           | 39.379292        | -80.867803        |

Regulated Stream? Ref. Gauge ID: **3114500** **MIDDLE ISLAND CREEK AT LITTLE, WV**

**Max. Pump rate (gpm): 3,000** **Min. Gauge Reading (cfs): 76.03** **Min. Passby (cfs) 28.83**

DEP Comments:

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● Source **McElroy Creek @ Forest Withdrawal** Tyler Owner: **Forest C. & Brenda L. Moore**

Start Date End Date Total Volume (gal) Max. daily purchase (gal) Intake Latitude: Intake Longitude:  
11/1/2013 11/1/2014 13,214,800 39.39675 -80.738197

Regulated Stream? Ref. Gauge ID: 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Max. Pump rate (gpm): **1,000** Min. Gauge Reading (cfs): **74.77** Min. Passby (cfs) **13.10**

DEP Comments:

● Source **Meathouse Fork @ Gagnon Withdrawal** Doddridge Owner: **George L. Gagnon and Susan C. Gagnon**

Start Date End Date Total Volume (gal) Max. daily purchase (gal) Intake Latitude: Intake Longitude:  
11/1/2013 11/1/2014 13,214,800 39.26054 -80.720998

Regulated Stream? Ref. Gauge ID: 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Max. Pump rate (gpm): **1,000** Min. Gauge Reading (cfs): **71.96** Min. Passby (cfs) **11.74**

DEP Comments:

● Source **Meathouse Fork @ Whitehair Withdrawal** Doddridge Owner: **Elton Whitehair**

Start Date End Date Total Volume (gal) Max. daily purchase (gal) Intake Latitude: Intake Longitude:  
11/1/2013 11/1/2014 13,214,800 39.211317 -80.679592

Regulated Stream? Ref. Gauge ID: 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Max. Pump rate (gpm): **1,000** Min. Gauge Reading (cfs): **69.73** Min. Passby (cfs) **7.28**

DEP Comments:

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● Source **Tom's Fork @ Erwin Withdrawal** Doddridge Owner: **John F. Erwin and Sandra E. Erwin**

|            |           |                    |                           |                  |                   |
|------------|-----------|--------------------|---------------------------|------------------|-------------------|
| Start Date | End Date  | Total Volume (gal) | Max. daily purchase (gal) | Intake Latitude: | Intake Longitude: |
| 11/1/2013  | 11/1/2014 | 13,214,800         |                           | 39.174306        | -80.702992        |

Regulated Stream? Ref. Gauge ID: **3114500** MIDDLE ISLAND CREEK AT LITTLE, WV

**Max. Pump rate (gpm): 1,000**    **Min. Gauge Reading (cfs): 69.73**    **Min. Passby (cfs) 0.59**

DEP Comments:

● Source **Arnold Creek @ Davis Withdrawal** Doddridge Owner: **Jonathon Davis**

|            |           |                    |                           |                  |                   |
|------------|-----------|--------------------|---------------------------|------------------|-------------------|
| Start Date | End Date  | Total Volume (gal) | Max. daily purchase (gal) | Intake Latitude: | Intake Longitude: |
| 11/1/2013  | 11/1/2014 | 13,214,800         |                           | 39.302006        | -80.824561        |

Regulated Stream? Ref. Gauge ID: **3114500** MIDDLE ISLAND CREEK AT LITTLE, WV

**Max. Pump rate (gpm): 1,000**    **Min. Gauge Reading (cfs): 69.73**    **Min. Passby (cfs) 3.08**

DEP Comments:

● Source **Buckeye Creek @ Powell Withdrawal** Doddridge Owner: **Dennis Powell**

|            |           |                    |                           |                  |                   |
|------------|-----------|--------------------|---------------------------|------------------|-------------------|
| Start Date | End Date  | Total Volume (gal) | Max. daily purchase (gal) | Intake Latitude: | Intake Longitude: |
| 11/1/2013  | 11/1/2014 | 13,214,800         |                           | 39.277142        | -80.690386        |

Regulated Stream? Ref. Gauge ID: **3114500** MIDDLE ISLAND CREEK AT LITTLE, WV

**Max. Pump rate (gpm): 1,000**    **Min. Gauge Reading (cfs): 69.73**    **Min. Passby (cfs) 4.59**

DEP Comments:

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● Source **South Fork of Hughes River @ Knight Withdrawal** Ritchie Owner: **Tracy C. Knight & Stephanie C. Knight**

|            |           |                    |                           |                  |                   |
|------------|-----------|--------------------|---------------------------|------------------|-------------------|
| Start Date | End Date  | Total Volume (gal) | Max. daily purchase (gal) | Intake Latitude: | Intake Longitude: |
| 11/1/2013  | 11/1/2014 | 13,214,800         |                           | 39.198369        | -80.870969        |

Regulated Stream? Ref. Gauge ID: **3155220** SOUTH FORK HUGHES RIVER BELOW MACFARLAN, WA

Max. Pump rate (gpm): **3,000** Min. Gauge Reading (cfs): **39.80** Min. Passby (cfs) **1.95**

DEP Comments:

● Source **North Fork of Hughes River @ Davis Withdrawal** Ritchie Owner: **Lewis P. Davis and Norma J. Davis**

|            |           |                    |                           |                  |                   |
|------------|-----------|--------------------|---------------------------|------------------|-------------------|
| Start Date | End Date  | Total Volume (gal) | Max. daily purchase (gal) | Intake Latitude: | Intake Longitude: |
| 11/1/2013  | 11/1/2014 | 13,214,800         |                           | 39.322363        | -80.936771        |

Regulated Stream? Ref. Gauge ID: **3155220** SOUTH FORK HUGHES RIVER BELOW MACFARLAN, WA

Max. Pump rate (gpm): **1,000** Min. Gauge Reading (cfs): **35.23** Min. Passby (cfs) **2.19**

DEP Comments:

11/22/2013

## Source Summary

WMP- 01501

API Number:

047-017-06373

Operator:

Antero Resources

Anne Unit 1H

## Purchased Water

● Source **Ohio River @ Select Energy** Pleasants Owner: **Select Energy**

| Start Date | End Date  | Total Volume (gal) | Max. daily purchase (gal) | Intake Latitude: | Intake Longitude: |
|------------|-----------|--------------------|---------------------------|------------------|-------------------|
| 11/1/2013  | 11/1/2014 | 13,214,800         | 500,000                   | 39.346473        | -81.338727        |

Regulated Stream? Ohio River Min. Flow Ref. Gauge ID: 9999998 Ohio River Station: Racine Dam

Max. Pump rate (gpm): **1,680** Min. Gauge Reading (cfs): **7,216.00** Min. Passby (cfs)

DEP Comments: Refer to the specified station on the National Weather Service's Ohio River forecast website: <http://www.erh.noaa.gov/ohrfc//flows.shtml>

● Source **Middle Island Creek @ Solo Construction** Pleasants Owner: **Solo Construction, LLC**

| Start Date | End Date  | Total Volume (gal) | Max. daily purchase (gal) | Intake Latitude: | Intake Longitude: |
|------------|-----------|--------------------|---------------------------|------------------|-------------------|
| 11/1/2013  | 11/1/2014 | 13,214,800         | 1,000,000                 | 39.399094        | -81.185548        |

Regulated Stream? Ohio River Min. Flow Ref. Gauge ID: 9999999 Ohio River Station: Willow Island Lock & Dam

Max. Pump rate (gpm): Min. Gauge Reading (cfs): **6,468.00** Min. Passby (cfs)

DEP Comments: Elevation analysis indicates that this location has the same elevation as Middle Island Creek's pour point into the Ohio River. As such, it is deemed that water flow at this location is heavily influenced by the Ohio River.

● Source **Claywood Park PSD** Wood Owner: **Claywood Park PSD**

| Start Date | End Date  | Total Volume (gal) | Max. daily purchase (gal) | Intake Latitude: | Intake Longitude: |
|------------|-----------|--------------------|---------------------------|------------------|-------------------|
| 11/1/2013  | 11/1/2014 | 13,214,800         |                           | -                | -                 |

Regulated Stream? Ref. Gauge ID: 9999998 Ohio River Station: Racine Dam

Max. Pump rate (gpm): Min. Gauge Reading (cfs): **7,216.00** Min. Passby (cfs)

DEP Comments: Elevation analysis indicates that this location has approximately the same elevation as Little Kanawha's pour point into the Ohio River. As such, it is deemed that water flow at this location is heavily influenced by the Ohio River.

**11/22/2013**

Source **Sun Valley Public Service District** **Harrison** Owner: **Sun Valley PSD**

|            |           |                    |                           |                  |                   |
|------------|-----------|--------------------|---------------------------|------------------|-------------------|
| Start Date | End Date  | Total Volume (gal) | Max. daily purchase (gal) | Intake Latitude: | Intake Longitude: |
| 11/1/2013  | 11/1/2014 | 13,214,800         | 200,000                   | -                | -                 |

Regulated Stream? **Stonewall Jackson Dam** Ref. Gauge ID: **3061000** **WEST FORK RIVER AT ENTERPRISE, WV**

**Max. Pump rate (gpm):** **Min. Gauge Reading (cfs): 171.48** **Min. Passby (cfs)**

DEP Comments:

11/22/2013

## Source Detail

WMP- 01501

API/ID Number: 047-017-06373

Operator:

Antero Resources

Anne Unit 1H

Source ID: 26532 Source Name Ohio River @ Select Energy  
Select Energy

Source Latitude: 39.346473  
Source Longitude: -81.338727

HUC-8 Code: 5030201

Drainage Area (sq. mi.): 25000 County: Pleasants

- Endangered Species?  Mussel Stream?
- Trout Stream?  Tier 3?
- Regulated Stream? Ohio River Min. Flow
- Proximate PSD?
- Gauged Stream?

Anticipated withdrawal start date: 11/1/2013  
Anticipated withdrawal end date: 11/1/2014  
Total Volume from Source (gal): 13,214,800  
Max. Pump rate (gpm): 1,680

Max. Simultaneous Trucks:  
Max. Truck pump rate (gpm)

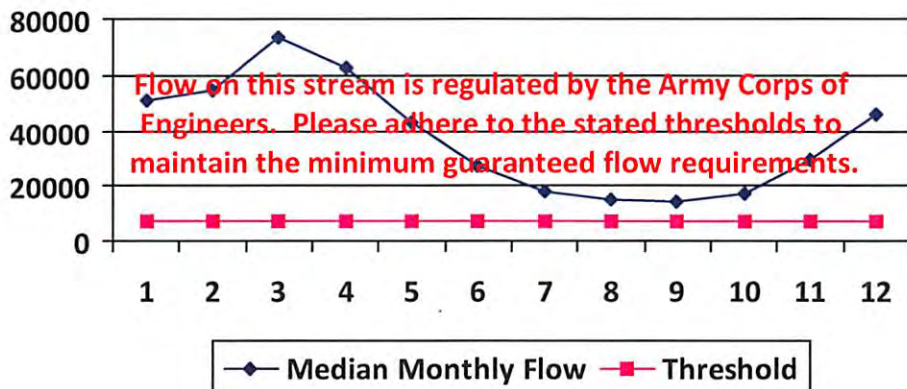
Reference Gaug 9999998 Ohio River Station: Racine Dam

Drainage Area (sq. mi.) 25,000.00

Gauge Threshold (cfs): 7216

| Month | Median monthly flow (cfs) | Threshold (+ pump) | Estimated Available water (cfs) |
|-------|---------------------------|--------------------|---------------------------------|
| 1     | 50,956.00                 | -                  | -                               |
| 2     | 54,858.00                 | -                  | -                               |
| 3     | 73,256.00                 | -                  | -                               |
| 4     | 62,552.00                 | -                  | -                               |
| 5     | 43,151.00                 | -                  | -                               |
| 6     | 27,095.00                 | -                  | -                               |
| 7     | 17,840.00                 | -                  | -                               |
| 8     | 14,941.00                 | -                  | -                               |
| 9     | 14,272.00                 | -                  | -                               |
| 10    | 17,283.00                 | -                  | -                               |
| 11    | 29,325.00                 | -                  | -                               |
| 12    | 46,050.00                 | -                  | -                               |

### Water Availability Profile



### Water Availability Assessment of Location

Base Threshold (cfs): -  
Upstream Demand (cfs): 0.00  
Downstream Demand (cfs): 0.00  
Pump rate (cfs): 3.74  
Headwater Safety (cfs): 0.00  
Ungauged Stream Safety (cfs): 0.00

Min. Gauge Reading (cfs): -  
Passby at Location (cfs): -

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

11/22/2013



## Source Detail

WMP- 01501

API/ID Number: 047-017-06373

Operator:

Antero Resources

Anne Unit 1H

Source ID: 26533 Source Name Middle Island Creek @ Solo Construction  
Solo Construction, LLC

Source Latitude: 39.399094

Source Longitude: -81.185548

HUC-8 Code: 5030201

Drainage Area (sq. mi.): 25000 County: Pleasants

Anticipated withdrawal start date: 11/1/2013

Anticipated withdrawal end date: 11/1/2014

Endangered Species?  Mussel Stream?

Total Volume from Source (gal): 13,214,800

Trout Stream?  Tier 3?

Max. Pump rate (gpm):

Regulated Stream? Ohio River Min. Flow

Max. Simultaneous Trucks:

Proximate PSD? City of St. Marys

Max. Truck pump rate (gpm) 0

Gauged Stream?

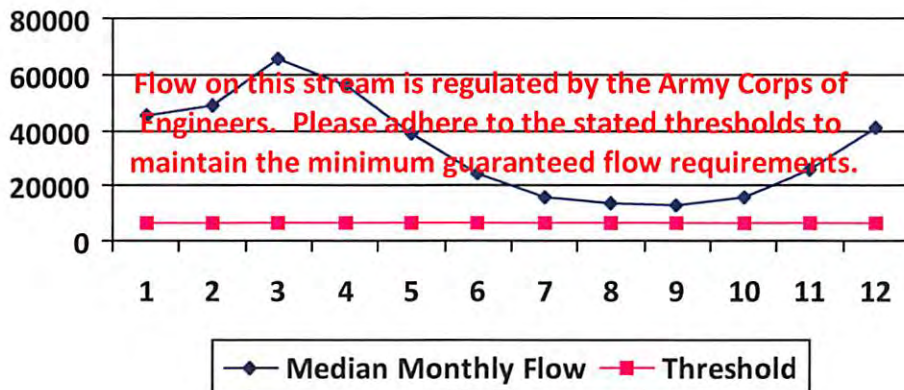
Reference Gaug 9999999 Ohio River Station: Willow Island Lock & Dam

Drainage Area (sq. mi.) 25,000.00

Gauge Threshold (cfs): 6468

| Month | Median monthly flow (cfs) | Threshold (+ pump) | Estimated Available water (cfs) |
|-------|---------------------------|--------------------|---------------------------------|
| 1     | 45,700.00                 | -                  | -                               |
| 2     | 49,200.00                 | -                  | -                               |
| 3     | 65,700.00                 | -                  | -                               |
| 4     | 56,100.00                 | -                  | -                               |
| 5     | 38,700.00                 | -                  | -                               |
| 6     | 24,300.00                 | -                  | -                               |
| 7     | 16,000.00                 | -                  | -                               |
| 8     | 13,400.00                 | -                  | -                               |
| 9     | 12,800.00                 | -                  | -                               |
| 10    | 15,500.00                 | -                  | -                               |
| 11    | 26,300.00                 | -                  | -                               |
| 12    | 41,300.00                 | -                  | -                               |

### Water Availability Profile



### Water Availability Assessment of Location

|                               |      |
|-------------------------------|------|
| Base Threshold (cfs):         | -    |
| Upstream Demand (cfs):        | 0.00 |
| Downstream Demand (cfs):      | 0.00 |
| Pump rate (cfs):              |      |
| Headwater Safety (cfs):       | 0.00 |
| Ungauged Stream Safety (cfs): | 0.00 |
| Min. Gauge Reading (cfs):     | -    |
| Passby at Location (cfs):     | -    |

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

11/22/2013

## Source Detail

WMP- 01501

API/ID Number: 047-017-06373

Operator:

Antero Resources

Anne Unit 1H

Source ID: 26534    Source Name: Claywood Park PSD  
Claywood Park PSD

Source Latitude: -

Source Longitude: -

HUC-8 Code: 5030203

Drainage Area (sq. mi.): 25000    County: Wood

Anticipated withdrawal start date: 11/1/2013

Anticipated withdrawal end date: 11/1/2014

Total Volume from Source (gal): 13,214,800

Endangered Species?     Mussel Stream?

Trout Stream?     Tier 3?

Regulated Stream?

Proximate PSD?    Claywood Park PSD

Gauged Stream?

Max. Pump rate (gpm):

Max. Simultaneous Trucks: 0

Max. Truck pump rate (gpm): 0

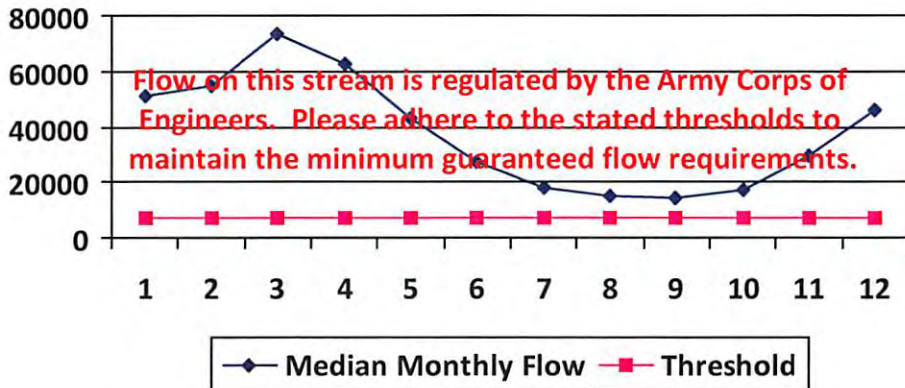
Reference Gaug: 9999998    Ohio River Station: Racine Dam

Drainage Area (sq. mi.): 25,000.00

Gauge Threshold (cfs): 7216

| Month | Median monthly flow (cfs) | Threshold (+ pump) | Estimated Available water (cfs) |
|-------|---------------------------|--------------------|---------------------------------|
| 1     | 50,956.00                 | -                  | -                               |
| 2     | 54,858.00                 | -                  | -                               |
| 3     | 73,256.00                 | -                  | -                               |
| 4     | 62,552.00                 | -                  | -                               |
| 5     | 43,151.00                 | -                  | -                               |
| 6     | 27,095.00                 | -                  | -                               |
| 7     | 17,840.00                 | -                  | -                               |
| 8     | 14,941.00                 | -                  | -                               |
| 9     | 14,272.00                 | -                  | -                               |
| 10    | 17,283.00                 | -                  | -                               |
| 11    | 29,325.00                 | -                  | -                               |
| 12    | 46,050.00                 | -                  | -                               |

### Water Availability Profile



### Water Availability Assessment of Location

Base Threshold (cfs): -

Upstream Demand (cfs): 0.00

Downstream Demand (cfs): 0.00

Pump rate (cfs):

Headwater Safety (cfs): 0.00

Ungauged Stream Safety (cfs): 0.00

Min. Gauge Reading (cfs): -

Passby at Location (cfs): -

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

11/22/2013

## Source Detail

WMP- 01501

API/ID Number: 047-017-06373

Operator: Antero Resources

Anne Unit 1H

Source ID: 26535 Source Name Sun Valley Public Service District  
Sun Valley PSD

Source Latitude: -  
Source Longitude: -

HUC-8 Code: 5020002

Drainage Area (sq. mi.): 391.85 County: Harrison

Anticipated withdrawal start date: 11/1/2013

Anticipated withdrawal end date: 11/1/2014

- Endangered Species?  Mussel Stream?
- Trout Stream?  Tier 3?
- Regulated Stream? Stonewall Jackson Dam
- Proximate PSD?
- Gauged Stream?

Total Volume from Source (gal): 13,214,800

Max. Pump rate (gpm):

Max. Simultaneous Trucks:

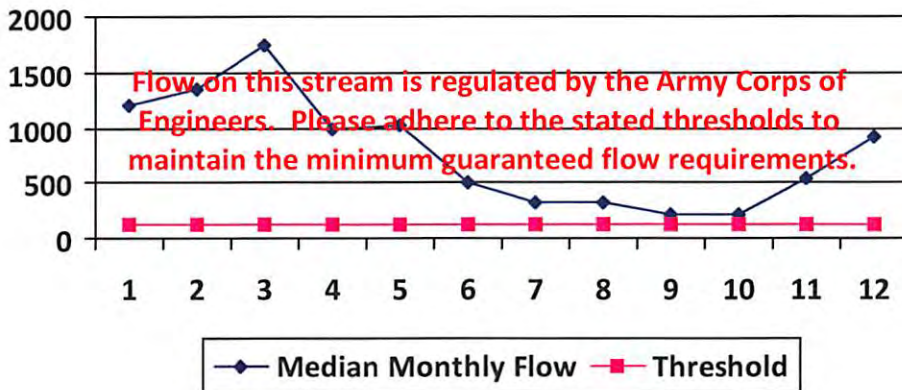
Max. Truck pump rate (gpm)

Reference Gaug 3061000 WEST FORK RIVER AT ENTERPRISE, WV

Drainage Area (sq. mi.) 759.00 Gauge Threshold (cfs): 234

| Month | Median monthly flow (cfs) | Threshold (+ pump) | Estimated Available water (cfs) |
|-------|---------------------------|--------------------|---------------------------------|
| 1     | 1,200.75                  | -                  | -                               |
| 2     | 1,351.92                  | -                  | -                               |
| 3     | 1,741.33                  | -                  | -                               |
| 4     | 995.89                    | -                  | -                               |
| 5     | 1,022.23                  | -                  | -                               |
| 6     | 512.21                    | -                  | -                               |
| 7     | 331.86                    | -                  | -                               |
| 8     | 316.87                    | -                  | -                               |
| 9     | 220.48                    | -                  | -                               |
| 10    | 216.17                    | -                  | -                               |
| 11    | 542.45                    | -                  | -                               |
| 12    | 926.12                    | -                  | -                               |

### Water Availability Profile



### Water Availability Assessment of Location

Base Threshold (cfs): -

Upstream Demand (cfs):

Downstream Demand (cfs):

Pump rate (cfs):

Headwater Safety (cfs): 0.00

Ungauged Stream Safety (cfs): 0.00

---

Min. Gauge Reading (cfs): -

Passby at Location (cfs): -

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

11/22/2013

## Source Detail

WMP-01501

API/ID Number: 047-017-06373

Operator: Antero Resources

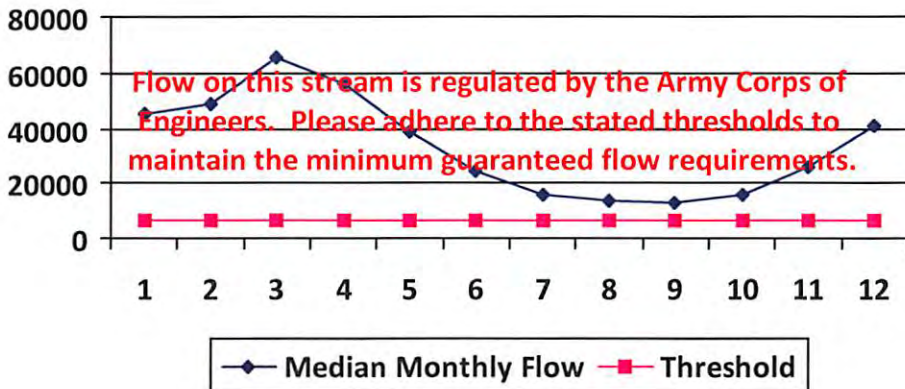
Anne Unit 1H

|                                                       |                                                    |                                              |                                                                                      |                   |            |
|-------------------------------------------------------|----------------------------------------------------|----------------------------------------------|--------------------------------------------------------------------------------------|-------------------|------------|
| Source ID:                                            | 26518                                              | Source Name:                                 | Ohio River @ Ben's Run Withdrawal Site<br>Ben's Run Land Company Limited Partnership | Source Latitude:  | 39.46593   |
|                                                       |                                                    |                                              |                                                                                      | Source Longitude: | -81.110781 |
| HUC-8 Code:                                           | 5030201                                            | Drainage Area (sq. mi.):                     | 25000                                                                                | County:           | Tyler      |
| <input type="checkbox"/> Endangered Species?          | <input checked="" type="checkbox"/> Mussel Stream? | Anticipated withdrawal start date: 11/1/2013 |                                                                                      |                   |            |
| <input type="checkbox"/> Trout Stream?                | <input type="checkbox"/> Tier 3?                   | Anticipated withdrawal end date: 11/1/2014   |                                                                                      |                   |            |
| <input checked="" type="checkbox"/> Regulated Stream? | Ohio River Min. Flow                               | Total Volume from Source (gal): 13,214,800   |                                                                                      |                   |            |
| <input type="checkbox"/> Proximate PSD?               |                                                    | Max. Pump rate (gpm): 3,360                  |                                                                                      |                   |            |
| <input checked="" type="checkbox"/> Gauged Stream?    |                                                    | Max. Simultaneous Trucks: 0                  |                                                                                      |                   |            |
|                                                       |                                                    | Max. Truck pump rate (gpm): 0                |                                                                                      |                   |            |

|                          |           |                        |                          |
|--------------------------|-----------|------------------------|--------------------------|
| Reference Gaug:          | 9999999   | Ohio River Station:    | Willow Island Lock & Dam |
| Drainage Area (sq. mi.): | 25,000.00 | Gauge Threshold (cfs): | 6468                     |

| Month | Median monthly flow (cfs) | Threshold (+ pump) | Estimated Available water (cfs) |
|-------|---------------------------|--------------------|---------------------------------|
| 1     | 45,700.00                 | -                  | -                               |
| 2     | 49,200.00                 | -                  | -                               |
| 3     | 65,700.00                 | -                  | -                               |
| 4     | 56,100.00                 | -                  | -                               |
| 5     | 38,700.00                 | -                  | -                               |
| 6     | 24,300.00                 | -                  | -                               |
| 7     | 16,000.00                 | -                  | -                               |
| 8     | 13,400.00                 | -                  | -                               |
| 9     | 12,800.00                 | -                  | -                               |
| 10    | 15,500.00                 | -                  | -                               |
| 11    | 26,300.00                 | -                  | -                               |
| 12    | 41,300.00                 | -                  | -                               |

### Water Availability Profile



#### Water Availability Assessment of Location

|                               |      |
|-------------------------------|------|
| Base Threshold (cfs):         | -    |
| Upstream Demand (cfs):        | 0.00 |
| Downstream Demand (cfs):      | 0.00 |
| Pump rate (cfs):              | 7.49 |
| Headwater Safety (cfs):       | 0.00 |
| Ungauged Stream Safety (cfs): | 0.00 |
| <hr/>                         |      |
| Min. Gauge Reading (cfs):     | -    |
| Passby at Location (cfs):     | -    |

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

11/22/2013

## Source Detail

WMP-01501

API/ID Number: 047-017-06373

Operator:

Antero Resources

Anne Unit 1H

Source ID: 26519 Source Name: West Fork River @ JCP Withdrawal  
James & Brenda Raines

Source Latitude: 39.320913

Source Longitude: -80.337572

HUC-8 Code: 5020002

Drainage Area (sq. mi.): 532.2 County: Harrison

Anticipated withdrawal start date: 11/1/2013

Anticipated withdrawal end date: 11/1/2014

Endangered Species?  Mussel Stream?

Total Volume from Source (gal): 13,214,800

Trout Stream?  Tier 3?

Max. Pump rate (gpm): 2,000

Regulated Stream? Stonewall Jackson Dam

Max. Simultaneous Trucks: 0

Proximate PSD?

Max. Truck pump rate (gpm): 0

Gauged Stream?

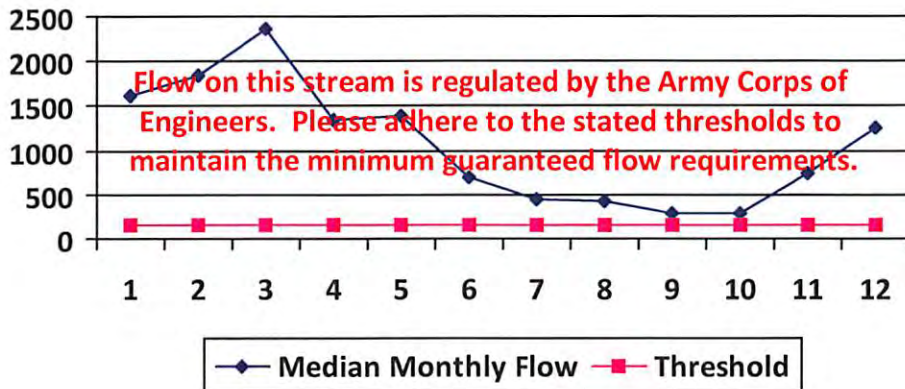
Reference Gaug: 3061000 WEST FORK RIVER AT ENTERPRISE, WV

Drainage Area (sq. mi.): 759.00

Gauge Threshold (cfs): 234

| Month | Median monthly flow (cfs) | Threshold (+ pump) | Estimated Available water (cfs) |
|-------|---------------------------|--------------------|---------------------------------|
| 1     | 1,630.82                  | -                  | -                               |
| 2     | 1,836.14                  | -                  | -                               |
| 3     | 2,365.03                  | -                  | -                               |
| 4     | 1,352.59                  | -                  | -                               |
| 5     | 1,388.37                  | -                  | -                               |
| 6     | 695.67                    | -                  | -                               |
| 7     | 450.73                    | -                  | -                               |
| 8     | 430.37                    | -                  | -                               |
| 9     | 299.45                    | -                  | -                               |
| 10    | 293.59                    | -                  | -                               |
| 11    | 736.74                    | -                  | -                               |
| 12    | 1,257.84                  | -                  | -                               |

### Water Availability Profile



### Water Availability Assessment of Location

|                               |       |
|-------------------------------|-------|
| Base Threshold (cfs):         | -     |
| Upstream Demand (cfs):        | 24.29 |
| Downstream Demand (cfs):      | 0.00  |
| Pump rate (cfs):              | 4.46  |
| Headwater Safety (cfs):       | 0.00  |
| Ungauged Stream Safety (cfs): | 0.00  |
| Min. Gauge Reading (cfs):     | -     |
| Passby at Location (cfs):     | -     |

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

11/22/2013

## Source Detail

WMP- 01501

API/ID Number: 047-017-06373

Operator: Antero Resources

Anne Unit 1H

Source ID: 26520 Source Name: West Fork River @ McDonald Withdrawal  
David Shrieves

Source Latitude: 39.16761  
Source Longitude: -80.45069

HUC-8 Code: 5020002

Drainage Area (sq. mi.): 314.91 County: Harrison

Anticipated withdrawal start date: 11/1/2013

Anticipated withdrawal end date: 11/1/2014

Endangered Species?  Mussel Stream?

Total Volume from Source (gal): 13,214,800

Trout Stream?

Tier 3?

Max. Pump rate (gpm): 3,000

Regulated Stream? Stonewall Jackson Dam

Max. Simultaneous Trucks: 0

Proximate PSD?

Max. Truck pump rate (gpm): 0

Gauged Stream?

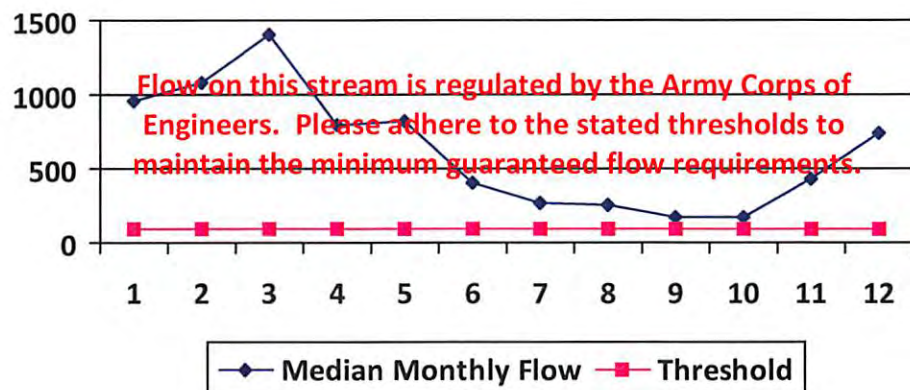
Reference Gaug 3061000 WEST FORK RIVER AT ENTERPRISE, WV

Drainage Area (sq. mi.) 759.00

Gauge Threshold (cfs): 234

| Month | Median monthly flow (cfs) | Threshold (+ pump) | Estimated Available water (cfs) |
|-------|---------------------------|--------------------|---------------------------------|
| 1     | 964.98                    | -                  | -                               |
| 2     | 1,086.47                  | -                  | -                               |
| 3     | 1,399.42                  | -                  | -                               |
| 4     | 800.34                    | -                  | -                               |
| 5     | 821.52                    | -                  | -                               |
| 6     | 411.64                    | -                  | -                               |
| 7     | 266.70                    | -                  | -                               |
| 8     | 254.66                    | -                  | -                               |
| 9     | 177.19                    | -                  | -                               |
| 10    | 173.72                    | -                  | -                               |
| 11    | 435.94                    | -                  | -                               |
| 12    | 744.28                    | -                  | -                               |

### Water Availability Profile



### Water Availability Assessment of Location

|                               |       |
|-------------------------------|-------|
| Base Threshold (cfs):         | -     |
| Upstream Demand (cfs):        | 24.29 |
| Downstream Demand (cfs):      | 0.00  |
| Pump rate (cfs):              | 6.68  |
| Headwater Safety (cfs):       | 24.27 |
| Ungauged Stream Safety (cfs): | 0.00  |
| Min. Gauge Reading (cfs):     | -     |
| Passby at Location (cfs):     | -     |

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

11/22/2013

## Source Detail

WMP-01501

API/ID Number: 047-017-06373

Operator: Antero Resources

Anne Unit 1H

Source ID: 26521 Source Name: West Fork River @ GAL Withdrawal  
David Shrieves

Source Latitude: 39.16422  
Source Longitude: -80.45173

HUC-8 Code: 5020002

Drainage Area (sq. mi.): 313.67 County: Harrison

Anticipated withdrawal start date: 11/1/2013

Anticipated withdrawal end date: 11/1/2014

Endangered Species?  Mussel Stream?

Total Volume from Source (gal): 13,214,800

Trout Stream?  Tier 3?

Max. Pump rate (gpm): 2,000

Regulated Stream? Stonewall Jackson Dam

Max. Simultaneous Trucks: 0

Proximate PSD?

Max. Truck pump rate (gpm): 0

Gauged Stream?

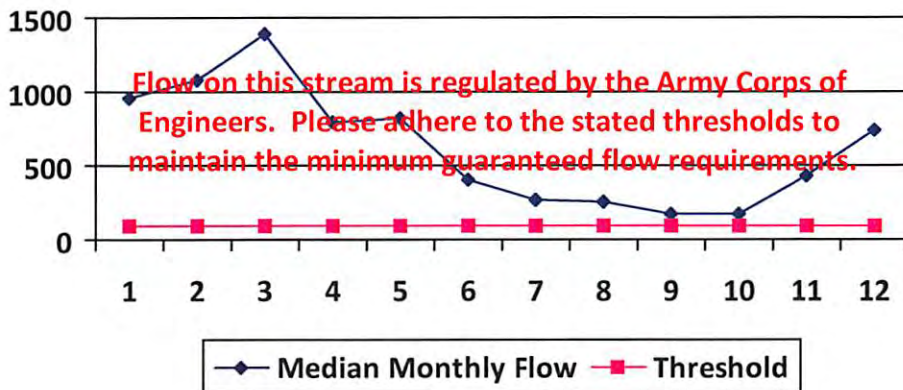
Reference Gaug: 3061000 WEST FORK RIVER AT ENTERPRISE, WV

Drainage Area (sq. mi.): 759.00

Gauge Threshold (cfs): 234

| Month | Median monthly flow (cfs) | Threshold (+ pump) | Estimated Available water (cfs) |
|-------|---------------------------|--------------------|---------------------------------|
| 1     | 961.18                    | -                  | -                               |
| 2     | 1,082.19                  | -                  | -                               |
| 3     | 1,393.91                  | -                  | -                               |
| 4     | 797.19                    | -                  | -                               |
| 5     | 818.28                    | -                  | -                               |
| 6     | 410.02                    | -                  | -                               |
| 7     | 265.65                    | -                  | -                               |
| 8     | 253.65                    | -                  | -                               |
| 9     | 176.49                    | -                  | -                               |
| 10    | 173.04                    | -                  | -                               |
| 11    | 434.22                    | -                  | -                               |
| 12    | 741.35                    | -                  | -                               |

### Water Availability Profile



### Water Availability Assessment of Location

|                               |       |
|-------------------------------|-------|
| Base Threshold (cfs):         | -     |
| Upstream Demand (cfs):        | 24.29 |
| Downstream Demand (cfs):      | 0.00  |
| Pump rate (cfs):              | 4.46  |
| Headwater Safety (cfs):       | 24.18 |
| Ungauged Stream Safety (cfs): | 0.00  |
| Min. Gauge Reading (cfs):     | -     |
| Passby at Location (cfs):     | -     |

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

11/22/2013

## Source Detail

WMP- 01501

API/ID Number: 047-017-06373

Operator: Antero Resources

Anne Unit 1H

Source ID: 26522 Source Name Middle Island Creek @ Mees Withdrawal Site  
Sarah E. Mees

Source Latitude: 39.43113  
Source Longitude: -81.079567

HUC-8 Code: 5030201

Drainage Area (sq. mi.): 484.78 County: Pleasants

Anticipated withdrawal start date: 11/1/2013

Anticipated withdrawal end date: 11/1/2014

Endangered Species?  Mussel Stream?

Total Volume from Source (gal): 13,214,800

Trout Stream?  Tier 3?

Max. Pump rate (gpm): 3,360

Regulated Stream?

Max. Simultaneous Trucks: 0

Proximate PSD?

Max. Truck pump rate (gpm): 0

Gauged Stream?

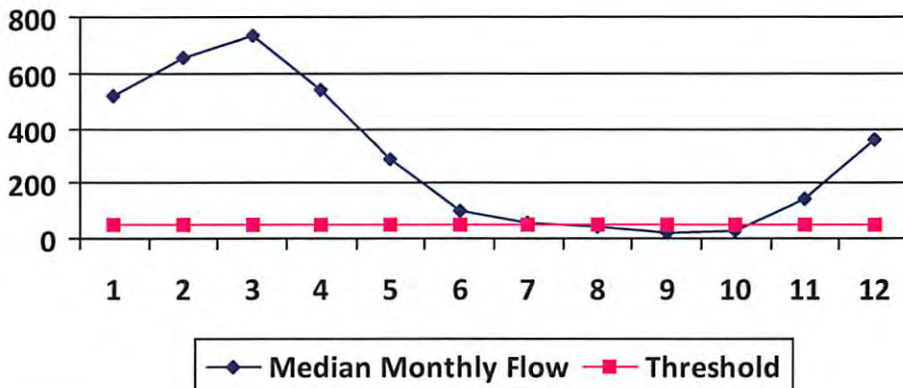
Reference Gaug 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.) 458.00

Gauge Threshold (cfs): 45

| Month | Median monthly flow (cfs) | Threshold (+ pump) | Estimated Available water (cfs) |
|-------|---------------------------|--------------------|---------------------------------|
| 1     | 519.88                    | 55.12              | 465.14                          |
| 2     | 653.95                    | 55.12              | 599.22                          |
| 3     | 731.75                    | 55.12              | 677.01                          |
| 4     | 543.38                    | 55.12              | 488.65                          |
| 5     | 286.64                    | 55.12              | 231.90                          |
| 6     | 100.10                    | 55.12              | 45.36                           |
| 7     | 56.65                     | 55.12              | 1.91                            |
| 8     | 46.64                     | 55.12              | -8.10                           |
| 9     | 23.89                     | 55.12              | -30.85                          |
| 10    | 30.01                     | 55.12              | -24.72                          |
| 11    | 146.56                    | 55.12              | 91.83                           |
| 12    | 358.10                    | 55.12              | 303.37                          |

### Water Availability Profile



### Water Availability Assessment of Location

|                               |       |
|-------------------------------|-------|
| Base Threshold (cfs):         | 47.63 |
| Upstream Demand (cfs):        | 0.00  |
| Downstream Demand (cfs):      | 0.00  |
| Pump rate (cfs):              | 7.49  |
| Headwater Safety (cfs):       | 0.00  |
| Ungauged Stream Safety (cfs): | 0.00  |
| Min. Gauge Reading (cfs):     | 52.49 |
| Passby at Location (cfs):     | 47.63 |

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

11/22/2013



## Source Detail

WMP- 01501

API/ID Number: 047-017-06373

Operator: Antero Resources

Anne Unit 1H

Source ID: 26523    Source Name: Middle Island Creek @ Dawson Withdrawal  
Gary D. and Rella A. Dawson

Source Latitude: 39.379292  
Source Longitude: -80.867803

HUC-8 Code: 5030201

Drainage Area (sq. mi.): 181.34    County: Tyler

Anticipated withdrawal start date: 11/1/2013

Anticipated withdrawal end date: 11/1/2014

Endangered Species?     Mussel Stream?

Trout Stream?     Tier 3?

Total Volume from Source (gal): 13,214,800

Regulated Stream?

Max. Pump rate (gpm): 3,000

Proximate PSD?

Max. Simultaneous Trucks: 0

Gauged Stream?

Max. Truck pump rate (gpm): 0

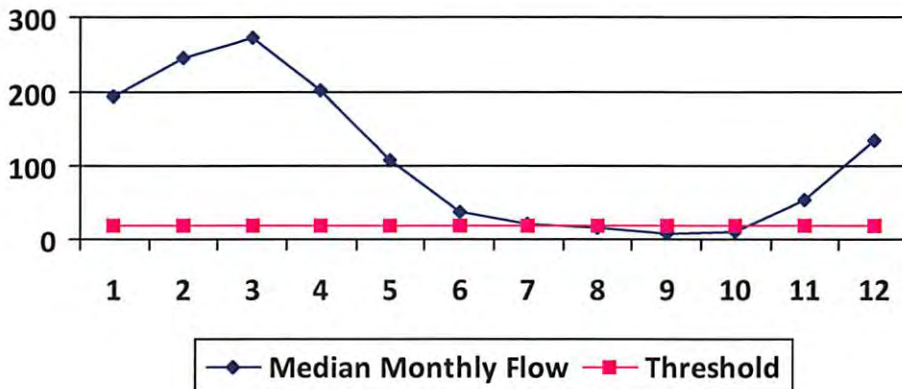
Reference Gaug: 3114500    MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.): 458.00

Gauge Threshold (cfs): 45

| Month | Median monthly flow (cfs) | Threshold (+ pump) | Estimated Available water (cfs) |
|-------|---------------------------|--------------------|---------------------------------|
| 1     | 194.47                    | 42.06              | 152.68                          |
| 2     | 244.62                    | 42.06              | 202.83                          |
| 3     | 273.72                    | 42.06              | 231.93                          |
| 4     | 203.26                    | 42.06              | 161.47                          |
| 5     | 107.22                    | 42.06              | 65.43                           |
| 6     | 37.44                     | 42.06              | -4.35                           |
| 7     | 21.19                     | 42.06              | -20.60                          |
| 8     | 17.45                     | 42.06              | -24.34                          |
| 9     | 8.94                      | 42.06              | -32.85                          |
| 10    | 11.23                     | 42.06              | -30.56                          |
| 11    | 54.82                     | 42.06              | 13.04                           |
| 12    | 133.96                    | 42.06              | 92.17                           |

### Water Availability Profile



### Water Availability Assessment of Location

Base Threshold (cfs): 17.82  
 Upstream Demand (cfs): 13.10  
 Downstream Demand (cfs): 6.55  
 Pump rate (cfs): 6.68  
 Headwater Safety (cfs): 4.45  
 Ungauged Stream Safety (cfs): 0.00

Min. Gauge Reading (cfs): 76.03

Passby at Location (cfs): 28.82

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

11/22/2013

## Source Detail

WMP- 01501

API/ID Number: 047-017-06373

Operator: Antero Resources

Anne Unit 1H

Source ID: 26524 Source Name: McElroy Creek @ Forest Withdrawal  
Forest C. & Brenda L. Moore

Source Latitude: 39.39675  
Source Longitude: -80.738197

HUC-8 Code: 5030201

Drainage Area (sq. mi.): 88.85 County: Tyler

Anticipated withdrawal start date: 11/1/2013

Anticipated withdrawal end date: 11/1/2014

Total Volume from Source (gal): 13,214,800

Max. Pump rate (gpm): 1,000

Max. Simultaneous Trucks: 0

Max. Truck pump rate (gpm): 0

- Endangered Species?  Mussel Stream?
- Trout Stream?  Tier 3?
- Regulated Stream?
- Proximate PSD?
- Gauged Stream?

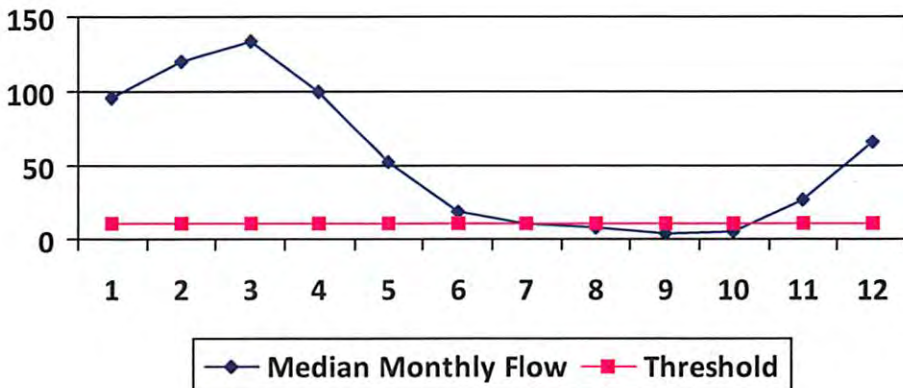
Reference Gaug: 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.): 458.00

Gauge Threshold (cfs): 45

| Month | Median monthly flow (cfs) | Threshold (+ pump) | Estimated Available water (cfs) |
|-------|---------------------------|--------------------|---------------------------------|
| 1     | 95.28                     | 19.78              | 75.68                           |
| 2     | 119.86                    | 19.78              | 100.25                          |
| 3     | 134.11                    | 19.78              | 114.51                          |
| 4     | 99.59                     | 19.78              | 79.99                           |
| 5     | 52.54                     | 19.78              | 32.93                           |
| 6     | 18.35                     | 19.78              | -1.26                           |
| 7     | 10.38                     | 19.78              | -9.22                           |
| 8     | 8.55                      | 19.78              | -11.05                          |
| 9     | 4.38                      | 19.78              | -15.23                          |
| 10    | 5.50                      | 19.78              | -14.10                          |
| 11    | 26.86                     | 19.78              | 7.26                            |
| 12    | 65.63                     | 19.78              | 46.03                           |

### Water Availability Profile



### Water Availability Assessment of Location

|                               |       |
|-------------------------------|-------|
| Base Threshold (cfs):         | 8.73  |
| Upstream Demand (cfs):        | 4.46  |
| Downstream Demand (cfs):      | 0.00  |
| Pump rate (cfs):              | 2.23  |
| Headwater Safety (cfs):       | 2.18  |
| Ungauged Stream Safety (cfs): | 2.18  |
| Min. Gauge Reading (cfs):     | 74.19 |
| Passby at Location (cfs):     | 13.09 |

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

11/22/2013

## Source Detail

WMP-01501

API/ID Number: 047-017-06373

Operator:

Antero Resources

Anne Unit 1H

Source ID: 26525 Source Name: Meathouse Fork @ Gagnon Withdrawal  
George L. Gagnon and Susan C. Gagnon

Source Latitude: 39.26054  
Source Longitude: -80.720998

HUC-8 Code: 5030201

Drainage Area (sq. mi.): 60.6 County: Doddridge

- Endangered Species?  Mussel Stream?
- Trout Stream?  Tier 3?
- Regulated Stream?
- Proximate PSD?
- Gauged Stream?

Anticipated withdrawal start date: 11/1/2013  
Anticipated withdrawal end date: 11/1/2014  
Total Volume from Source (gal): 13,214,800  
Max. Pump rate (gpm): 1,000  
Max. Simultaneous Trucks: 0  
Max. Truck pump rate (gpm): 0

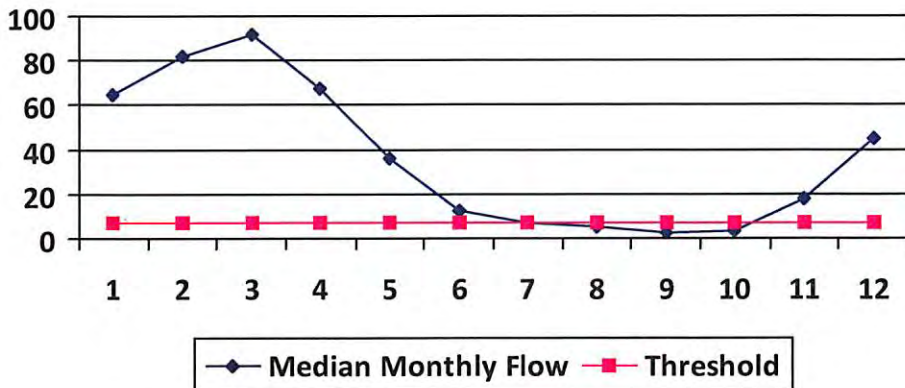
Reference Gaug: 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.): 458.00

Gauge Threshold (cfs): 45

| Month | Median monthly flow (cfs) | Threshold (+ pump) | Estimated Available water (cfs) |
|-------|---------------------------|--------------------|---------------------------------|
| 1     | 64.99                     | 13.39              | 51.70                           |
| 2     | 81.75                     | 13.39              | 68.46                           |
| 3     | 91.47                     | 13.39              | 78.19                           |
| 4     | 67.93                     | 13.39              | 54.64                           |
| 5     | 35.83                     | 13.39              | 22.55                           |
| 6     | 12.51                     | 13.39              | -0.77                           |
| 7     | 7.08                      | 13.39              | -6.20                           |
| 8     | 5.83                      | 13.39              | -7.45                           |
| 9     | 2.99                      | 13.39              | -10.30                          |
| 10    | 3.75                      | 13.39              | -9.53                           |
| 11    | 18.32                     | 13.39              | 5.04                            |
| 12    | 44.76                     | 13.39              | 31.48                           |

### Water Availability Profile



### Water Availability Assessment of Location

Base Threshold (cfs): 5.95  
Upstream Demand (cfs): 2.23  
Downstream Demand (cfs): 2.81  
Pump rate (cfs): 2.23  
Headwater Safety (cfs): 1.49  
Ungauged Stream Safety (cfs): 1.49

---

Min. Gauge Reading (cfs): 71.96  
Passby at Location (cfs): 11.74

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

11/22/2013

## Source Detail

WMP- 01501

API/ID Number: 047-017-06373

Operator:

Antero Resources

Anne Unit 1H

Source ID: 26526 Source Name Meathouse Fork @ Whitehair Withdrawal  
Elton Whitehair

Source Latitude: 39.211317  
Source Longitude: -80.679592

HUC-8 Code: 5030201

Drainage Area (sq. mi.): 30.37 County: Doddridge

Anticipated withdrawal start date: 11/1/2013

Anticipated withdrawal end date: 11/1/2014

Endangered Species?  Mussel Stream?

Total Volume from Source (gal): 13,214,800

Trout Stream?  Tier 3?

Max. Pump rate (gpm): 1,000

Regulated Stream?

Max. Simultaneous Trucks: 0

Proximate PSD?

Max. Truck pump rate (gpm): 0

Gauged Stream?

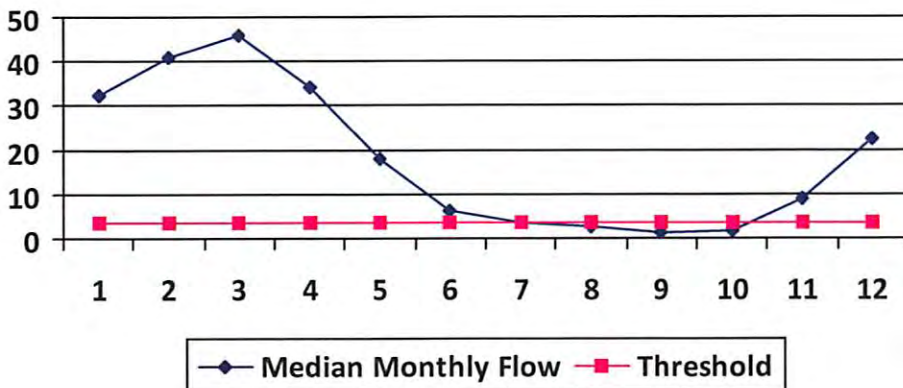
Reference Gaug 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.) 458.00

Gauge Threshold (cfs): 45

| Month | Median monthly flow (cfs) | Threshold (+ pump) | Estimated Available water (cfs) |
|-------|---------------------------|--------------------|---------------------------------|
| 1     | 32.57                     | 6.70               | 26.15                           |
| 2     | 40.97                     | 6.70               | 34.55                           |
| 3     | 45.84                     | 6.70               | 39.42                           |
| 4     | 34.04                     | 6.70               | 27.62                           |
| 5     | 17.96                     | 6.70               | 11.54                           |
| 6     | 6.27                      | 6.70               | -0.15                           |
| 7     | 3.55                      | 6.70               | -2.87                           |
| 8     | 2.92                      | 6.70               | -3.50                           |
| 9     | 1.50                      | 6.70               | -4.92                           |
| 10    | 1.88                      | 6.70               | -4.54                           |
| 11    | 9.18                      | 6.70               | 2.76                            |
| 12    | 22.43                     | 6.70               | 16.01                           |

### Water Availability Profile



### Water Availability Assessment of Location

|                               |       |
|-------------------------------|-------|
| Base Threshold (cfs):         | 2.98  |
| Upstream Demand (cfs):        | 0.00  |
| Downstream Demand (cfs):      | 2.81  |
| Pump rate (cfs):              | 2.23  |
| Headwater Safety (cfs):       | 0.75  |
| Ungauged Stream Safety (cfs): | 0.75  |
| Min. Gauge Reading (cfs):     | 69.73 |
| Passby at Location (cfs):     | 7.29  |

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

11/22/2013

## Source Detail

WMP-01501

API/ID Number: 047-017-06373

Operator:

Antero Resources

Anne Unit 1H

Source ID: 26527 Source Name: Tom's Fork @ Erwin Withdrawal  
John F. Erwin and Sandra E. Erwin

Source Latitude: 39.174306  
Source Longitude: -80.702992

HUC-8 Code: 5030201

Drainage Area (sq. mi.): 4.01 County: Doddridge

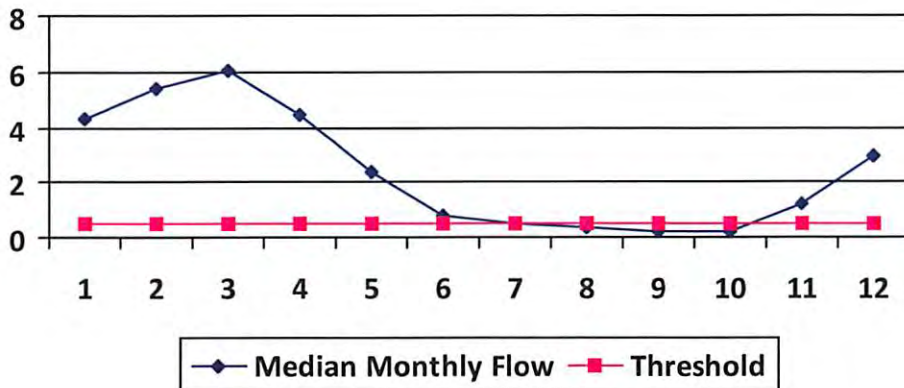
- Endangered Species?  Mussel Stream?
- Trout Stream?  Tier 3?
- Regulated Stream?
- Proximate PSD?
- Gauged Stream?

Anticipated withdrawal start date: 11/1/2013  
Anticipated withdrawal end date: 11/1/2014  
Total Volume from Source (gal): 13,214,800  
Max. Pump rate (gpm): 1,000  
Max. Simultaneous Trucks: 0  
Max. Truck pump rate (gpm): 0

Reference Gaug: 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV  
Drainage Area (sq. mi.): 458.00 Gauge Threshold (cfs): 45

| Month | Median monthly flow (cfs) | Threshold (+ pump) | Estimated Available water (cfs) |
|-------|---------------------------|--------------------|---------------------------------|
| 1     | 4.30                      | 2.82               | 1.88                            |
| 2     | 5.41                      | 2.82               | 2.98                            |
| 3     | 6.05                      | 2.82               | 3.63                            |
| 4     | 4.49                      | 2.82               | 2.07                            |
| 5     | 2.37                      | 2.82               | -0.05                           |
| 6     | 0.83                      | 2.82               | -1.60                           |
| 7     | 0.47                      | 2.82               | -1.96                           |
| 8     | 0.39                      | 2.82               | -2.04                           |
| 9     | 0.20                      | 2.82               | -2.23                           |
| 10    | 0.25                      | 2.82               | -2.18                           |
| 11    | 1.21                      | 2.82               | -1.21                           |
| 12    | 2.96                      | 2.82               | 0.54                            |

### Water Availability Profile



### Water Availability Assessment of Location

Base Threshold (cfs): 0.39  
Upstream Demand (cfs): 0.00  
Downstream Demand (cfs): 0.00  
Pump rate (cfs): 2.23  
Headwater Safety (cfs): 0.10  
Ungauged Stream Safety (cfs): 0.10

---

Min. Gauge Reading (cfs): 69.73  
Passby at Location (cfs): 0.59

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

11/22/2013

## Source Detail

WMP- 01501

API/ID Number: 047-017-06373

Operator:

Antero Resources

Anne Unit 1H

Source ID: 26528 Source Name Arnold Creek @ Davis Withdrawal  
Jonathon Davis

Source Latitude: 39.302006  
Source Longitude: -80.824561

HUC-8 Code: 5030201

Drainage Area (sq. mi.): 20.83 County: Doddridge

- Endangered Species?  Mussel Stream?
- Trout Stream?  Tier 3?
- Regulated Stream?
- Proximate PSD?
- Gauged Stream?

Anticipated withdrawal start date: 11/1/2013  
Anticipated withdrawal end date: 11/1/2014  
Total Volume from Source (gal): 13,214,800  
Max. Pump rate (gpm): 1,000  
Max. Simultaneous Trucks: 0  
Max. Truck pump rate (gpm): 0

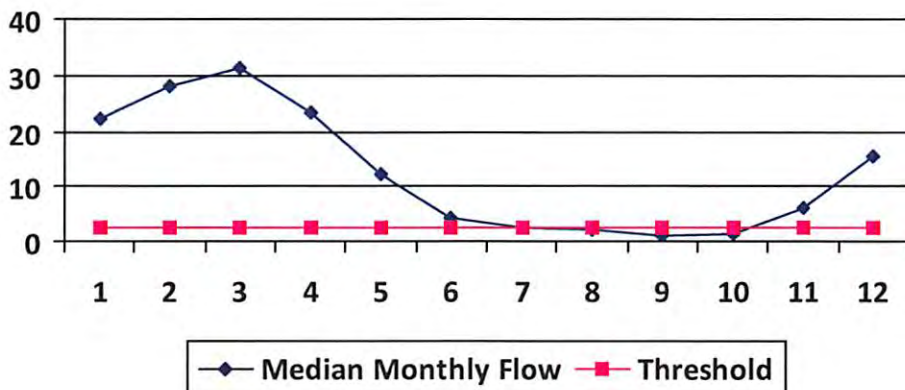
Reference Gaug 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.) 458.00

Gauge Threshold (cfs): 45

| Month | Median monthly flow (cfs) | Threshold (+ pump) | Estimated Available water (cfs) |
|-------|---------------------------|--------------------|---------------------------------|
| 1     | 22.34                     | 5.30               | 17.29                           |
| 2     | 28.10                     | 5.30               | 23.05                           |
| 3     | 31.44                     | 5.30               | 26.39                           |
| 4     | 23.35                     | 5.30               | 18.30                           |
| 5     | 12.32                     | 5.30               | 7.26                            |
| 6     | 4.30                      | 5.30               | -0.75                           |
| 7     | 2.43                      | 5.30               | -2.62                           |
| 8     | 2.00                      | 5.30               | -3.05                           |
| 9     | 1.03                      | 5.30               | -4.03                           |
| 10    | 1.29                      | 5.30               | -3.76                           |
| 11    | 6.30                      | 5.30               | 1.25                            |
| 12    | 15.39                     | 5.30               | 10.34                           |

### Water Availability Profile



### Water Availability Assessment of Location

Base Threshold (cfs): 2.05  
Upstream Demand (cfs): 0.00  
Downstream Demand (cfs): 0.00  
Pump rate (cfs): 2.23  
Headwater Safety (cfs): 0.51  
Ungauged Stream Safety (cfs): 0.51

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Min. Gauge Reading (cfs): 69.73  
Passby at Location (cfs): 3.07

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

11/22/2013

## Source Detail

WMP-01501

API/ID Number: 047-017-06373

Operator: Antero Resources

Anne Unit 1H

Source ID: 26529 Source Name: Buckeye Creek @ Powell Withdrawal  
Dennis Powell

Source Latitude: 39.277142  
Source Longitude: -80.690386

HUC-8 Code: 5030201

Drainage Area (sq. mi.): 31.15 County: Doddridge

Anticipated withdrawal start date: 11/1/2013

Anticipated withdrawal end date: 11/1/2014

Endangered Species?  Mussel Stream?

Total Volume from Source (gal): 13,214,800

Trout Stream?  Tier 3?

Max. Pump rate (gpm): 1,000

Regulated Stream?

Max. Simultaneous Trucks: 0

Proximate PSD?

Max. Truck pump rate (gpm): 0

Gauged Stream?

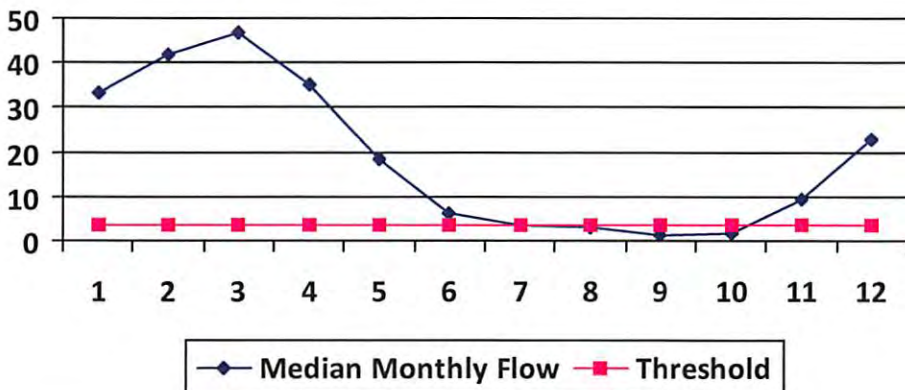
Reference Gaug: 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.): 458.00

Gauge Threshold (cfs): 45

| Month | Median monthly flow (cfs) | Threshold (+ pump) | Estimated Available water (cfs) |
|-------|---------------------------|--------------------|---------------------------------|
| 1     | 33.41                     | 6.82               | 26.95                           |
| 2     | 42.02                     | 6.82               | 35.56                           |
| 3     | 47.02                     | 6.82               | 40.56                           |
| 4     | 34.92                     | 6.82               | 28.46                           |
| 5     | 18.42                     | 6.82               | 11.96                           |
| 6     | 6.43                      | 6.82               | -0.03                           |
| 7     | 3.64                      | 6.82               | -2.82                           |
| 8     | 3.00                      | 6.82               | -3.46                           |
| 9     | 1.53                      | 6.82               | -4.92                           |
| 10    | 1.93                      | 6.82               | -4.53                           |
| 11    | 9.42                      | 6.82               | 2.96                            |
| 12    | 23.01                     | 6.82               | 16.55                           |

### Water Availability Profile



### Water Availability Assessment of Location

Base Threshold (cfs): 3.06

Upstream Demand (cfs): 0.00

Downstream Demand (cfs): 0.00

Pump rate (cfs): 2.23

Headwater Safety (cfs): 0.77

Ungauged Stream Safety (cfs): 0.77

Min. Gauge Reading (cfs): 69.73

Passby at Location (cfs): 4.59

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

11/22/2013

## Source Detail

WMP- 01501

API/ID Number: 047-017-06373

Operator: Antero Resources

Anne Unit 1H

Source ID: 26530 Source Name: South Fork of Hughes River @ Knight Withdrawal  
Tracy C. Knight & Stephanie C. Knight

Source Latitude: 39.198369  
Source Longitude: -80.870969

HUC-8 Code: 5030203

Drainage Area (sq. mi.): 16.26 County: Ritchie

Anticipated withdrawal start date: 11/1/2013

Anticipated withdrawal end date: 11/1/2014

Endangered Species?  Mussel Stream?

Total Volume from Source (gal): 13,214,800

Trout Stream?  Tier 3?

Max. Pump rate (gpm): 3,000

Regulated Stream?

Max. Simultaneous Trucks: 0

Proximate PSD?

Max. Truck pump rate (gpm): 0

Gauged Stream?

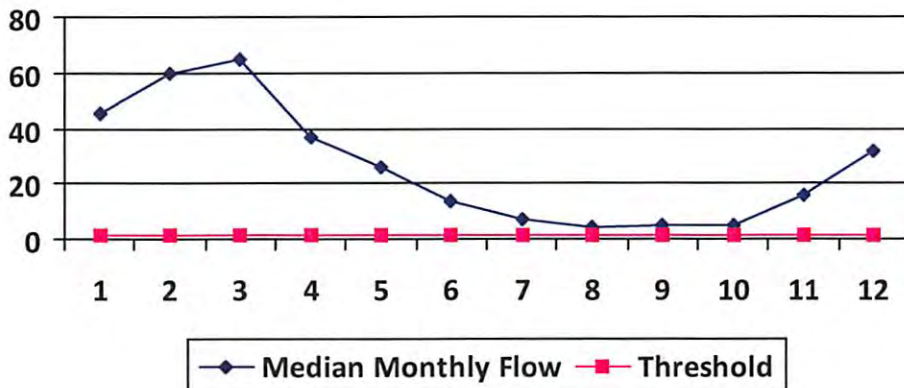
Reference Gaug: 3155220 SOUTH FORK HUGHES RIVER BELOW MACFARLAN, WV

Drainage Area (sq. mi.): 229.00

Gauge Threshold (cfs): 22

| Month | Median monthly flow (cfs) | Threshold (+ pump) | Estimated Available water (cfs) |
|-------|---------------------------|--------------------|---------------------------------|
| 1     | 45.67                     | 14.26              | 31.44                           |
| 2     | 59.55                     | 14.26              | 45.31                           |
| 3     | 65.21                     | 14.26              | 50.97                           |
| 4     | 36.87                     | 14.26              | 22.63                           |
| 5     | 25.86                     | 14.26              | 11.63                           |
| 6     | 13.90                     | 14.26              | -0.33                           |
| 7     | 6.89                      | 14.26              | -7.34                           |
| 8     | 3.98                      | 14.26              | -10.25                          |
| 9     | 4.79                      | 14.26              | -9.45                           |
| 10    | 5.20                      | 14.26              | -9.04                           |
| 11    | 15.54                     | 14.26              | 1.30                            |
| 12    | 32.06                     | 14.26              | 17.82                           |

### Water Availability Profile



### Water Availability Assessment of Location

|                                  |              |
|----------------------------------|--------------|
| Base Threshold (cfs):            | 1.56         |
| Upstream Demand (cfs):           | 5.62         |
| Downstream Demand (cfs):         | 0.00         |
| Pump rate (cfs):                 | 6.68         |
| Headwater Safety (cfs):          | 0.39         |
| Ungauged Stream Safety (cfs):    | 0.00         |
| <b>Min. Gauge Reading (cfs):</b> | <b>39.80</b> |
| <b>Passby at Location (cfs):</b> | <b>1.95</b>  |

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

11/22/2013



## Source Detail

WMP- 01501

API/ID Number: 047-017-06373

Operator:

Antero Resources

Anne Unit 1H

Source ID: 26531    Source Name: North Fork of Hughes River @ Davis Withdrawal  
Lewis P. Davis and Norma J. Davis

Source Latitude: 39.322363

Source Longitude: -80.936771

HUC-8 Code: 5030203

Drainage Area (sq. mi.): 15.18    County: Ritchie

Anticipated withdrawal start date: 11/1/2013

Anticipated withdrawal end date: 11/1/2014

Endangered Species?     Mussel Stream?

Total Volume from Source (gal): 13,214,800

Trout Stream?     Tier 3?

Max. Pump rate (gpm): 1,000

Regulated Stream?

Max. Simultaneous Trucks: 0

Proximate PSD?

Max. Truck pump rate (gpm): 0

Gauged Stream?

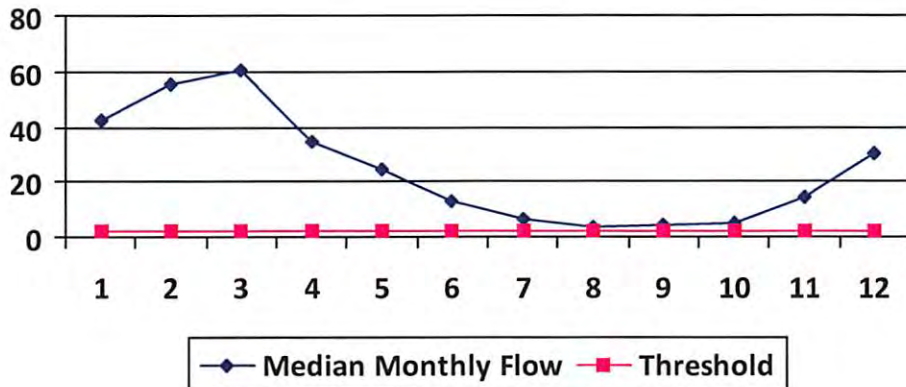
Reference Gaug: 3155220    SOUTH FORK HUGHES RIVER BELOW MACFARLAN, WV

Drainage Area (sq. mi.): 229.00

Gauge Threshold (cfs): 22

| Month | Median monthly flow (cfs) | Threshold (+ pump) | Estimated Available water (cfs) |
|-------|---------------------------|--------------------|---------------------------------|
| 1     | 42.64                     | 4.42               | 38.36                           |
| 2     | 55.59                     | 4.42               | 51.32                           |
| 3     | 60.88                     | 4.42               | 56.60                           |
| 4     | 34.42                     | 4.42               | 30.14                           |
| 5     | 24.15                     | 4.42               | 19.87                           |
| 6     | 12.98                     | 4.42               | 8.70                            |
| 7     | 6.44                      | 4.42               | 2.16                            |
| 8     | 3.72                      | 4.42               | -0.56                           |
| 9     | 4.47                      | 4.42               | 0.19                            |
| 10    | 4.85                      | 4.42               | 0.57                            |
| 11    | 14.50                     | 4.42               | 10.23                           |
| 12    | 29.93                     | 4.42               | 25.65                           |

### Water Availability Profile



### Water Availability Assessment of Location

Base Threshold (cfs): 1.46

Upstream Demand (cfs): 0.00

Downstream Demand (cfs): 0.00

Pump rate (cfs): 2.23

Headwater Safety (cfs): 0.36

Ungauged Stream Safety (cfs): 0.36

Min. Gauge Reading (cfs): 35.23

Passby at Location (cfs): 2.19

"Threshold", as depicted in the chart above is meant only to indicate the calculated base threshold at the proposed withdrawal location. This value does not include the proposed pump rate or existing demand on the stream. Refer to the monthly breakdown above for a more complete estimation of water availability by month.

11/22/2013



## Water Management Plan: Secondary Water Sources



WMP- 01501

API/ID Number| 047-017-06373

Operator:

Antero Resources

Anne Unit 1H

**Important:**

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

### Lake/Reservoir

|                           |           |                                 |                                                                  |                    |           |
|---------------------------|-----------|---------------------------------|------------------------------------------------------------------|--------------------|-----------|
| Source ID:                | 26536     | Source Name                     | City of Salem Reservoir (Lower Dog Run)<br>Public Water Provider | Source start date: | 11/1/2013 |
|                           |           |                                 |                                                                  | Source end date:   | 11/1/2014 |
| Source Lat:               | 39.28834  | Source Long:                    | -80.54966                                                        | County             | Harrison  |
| Max. Daily Purchase (gal) | 1,000,000 | Total Volume from Source (gal): | 13,214,800                                                       |                    |           |

DEP Comments:

**Important:**

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

|            |       |                           |                |                                 |                    |           |            |
|------------|-------|---------------------------|----------------|---------------------------------|--------------------|-----------|------------|
| Source ID: | 26537 | Source Name               | Pennsboro Lake |                                 | Source start date: | 11/1/2013 |            |
|            |       |                           |                |                                 | Source end date:   | 11/1/2014 |            |
|            |       | Source Lat:               | 39.281689      | Source Long:                    | -80.925526         | County    | Ritchie    |
|            |       | Max. Daily Purchase (gal) |                | Total Volume from Source (gal): |                    |           | 13,214,800 |

DEP Comments:

|            |       |                           |                                         |                                 |                    |           |            |
|------------|-------|---------------------------|-----------------------------------------|---------------------------------|--------------------|-----------|------------|
| Source ID: | 26538 | Source Name               | Powers Lake (Wilderness Water Park Dam) |                                 | Source start date: | 11/1/2013 |            |
|            |       |                           |                                         |                                 | Source end date:   | 11/1/2014 |            |
|            |       |                           |                                         |                                 |                    |           |            |
|            |       | Source Lat:               | 39.255752                               | Source Long:                    | -80.463262         | County    | Harrison   |
|            |       | Max. Daily Purchase (gal) |                                         | Total Volume from Source (gal): |                    |           | 13,214,800 |

DEP Comments:

**Important:**

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

|            |       |                           |                 |                                 |                    |            |          |
|------------|-------|---------------------------|-----------------|---------------------------------|--------------------|------------|----------|
| Source ID: | 26539 | Source Name               | Powers Lake Two |                                 | Source start date: | 11/1/2013  |          |
|            |       |                           |                 |                                 | Source end date:   | 11/1/2014  |          |
|            |       | Source Lat:               | 39.247604       | Source Long:                    | -80.466642         | County     | Harrison |
|            |       | Max. Daily Purchase (gal) |                 | Total Volume from Source (gal): |                    | 13,214,800 |          |

DEP Comments:

**Important:**

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

**Other**

|            |       |                           |                            |                                 |                    |           |            |
|------------|-------|---------------------------|----------------------------|---------------------------------|--------------------|-----------|------------|
| Source ID: | 26540 | Source Name               | Poth Lake (Landowner Pond) |                                 | Source start date: | 11/1/2013 |            |
|            |       |                           | Private Owner              |                                 | Source end date:   | 11/1/2014 |            |
|            |       | Source Lat:               | 39.221306                  | Source Long:                    | -80.463028         | County    | Harrison   |
|            |       | Max. Daily Purchase (gal) |                            | Total Volume from Source (gal): |                    |           | 13,214,800 |

DEP Comments:

|            |       |                           |                                  |                                 |                    |           |            |
|------------|-------|---------------------------|----------------------------------|---------------------------------|--------------------|-----------|------------|
| Source ID: | 26541 | Source Name               | Williamson Pond (Landowner Pond) |                                 | Source start date: | 11/1/2013 |            |
|            |       |                           |                                  |                                 | Source end date:   | 11/1/2014 |            |
|            |       | Source Lat:               | 39.19924                         | Source Long:                    | -80.886161         | County    | Ritchie    |
|            |       | Max. Daily Purchase (gal) |                                  | Total Volume from Source (gal): |                    |           | 13,214,800 |

DEP Comments:

**Important:**

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

|            |       |                           |                            |                                 |                    |           |            |
|------------|-------|---------------------------|----------------------------|---------------------------------|--------------------|-----------|------------|
| Source ID: | 26542 | Source Name               | Eddy Pond (Landowner Pond) |                                 | Source start date: | 11/1/2013 |            |
|            |       |                           |                            |                                 | Source end date:   | 11/1/2014 |            |
|            |       | Source Lat:               | 39.19924                   | Source Long:                    | -80.886161         | County    | Ritchie    |
|            |       | Max. Daily Purchase (gal) |                            | Total Volume from Source (gal): |                    |           | 13,214,800 |

DEP Comments:

|            |       |                           |                                        |                                 |                    |           |            |
|------------|-------|---------------------------|----------------------------------------|---------------------------------|--------------------|-----------|------------|
| Source ID: | 26543 | Source Name               | Hog Lick Quarry<br>Industrial Facility |                                 | Source start date: | 11/1/2013 |            |
|            |       |                           |                                        |                                 | Source end date:   | 11/1/2014 |            |
|            |       | Source Lat:               | 39.419272                              | Source Long:                    | -80.217941         | County    | Marion     |
|            |       | Max. Daily Purchase (gal) | 1,000,000                              | Total Volume from Source (gal): |                    |           | 13,214,800 |

DEP Comments:

**Important:**

For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. Please review the following notes:

- For groundwater supply wells, DEP recommends that the operator contact the local health department prior to drilling any new well; and reminds the operator that all drinking water wells within 1,500 feet of a water supply well shall be flow- and quality-tested by the operator at the request of the drinking well owner prior to operation of the water supply well.
- For each proposed multi-site impoundment water source identified in your water management plan (if applicable), DEP will review the withdrawal limits established in the referenced Water Management Plan for current suitability and provide to the operator these limits for each identified intake. Note that withdrawal limits may be modified as necessary based on changing demands upon that water supply.

|                           |             |                                        |                    |           |        |
|---------------------------|-------------|----------------------------------------|--------------------|-----------|--------|
| Source ID: 26544          | Source Name | Glade Fork Mine<br>Industrial Facility | Source start date: | 11/1/2013 |        |
|                           |             |                                        | Source end date:   | 11/1/2014 |        |
| Source Lat:               | 38.965767   | Source Long:                           | -80.299313         | County    | Upshur |
| Max. Daily Purchase (gal) | 1,000,000   | Total Volume from Source (gal):        | 13,214,800         |           |        |

DEP Comments:

**Recycled Frac Water**

|                           |             |                                 |                    |           |
|---------------------------|-------------|---------------------------------|--------------------|-----------|
| Source ID: 26545          | Source Name | Various                         | Source start date: | 11/1/2013 |
|                           |             |                                 | Source end date:   | 11/1/2014 |
| Source Lat:               |             | Source Long:                    |                    | County    |
| Max. Daily Purchase (gal) |             | Total Volume from Source (gal): | 13,214,800         |           |

DEP Comments:



PETRA 6/20/13 8:47:16 AM

DCW  
9-30-2013  
17 06973

Received  
Office of Oil & Gas

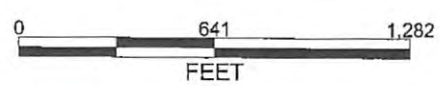
OCT - 4 2013

Antero Resources Corporation

Anne Unit 1H

Misery Pad

Doddridge County



REMARKS

QUADRANGLE: Smithburg  
WATERSHED: Tributary of Little Flint Run  
DISTRICT: Grant

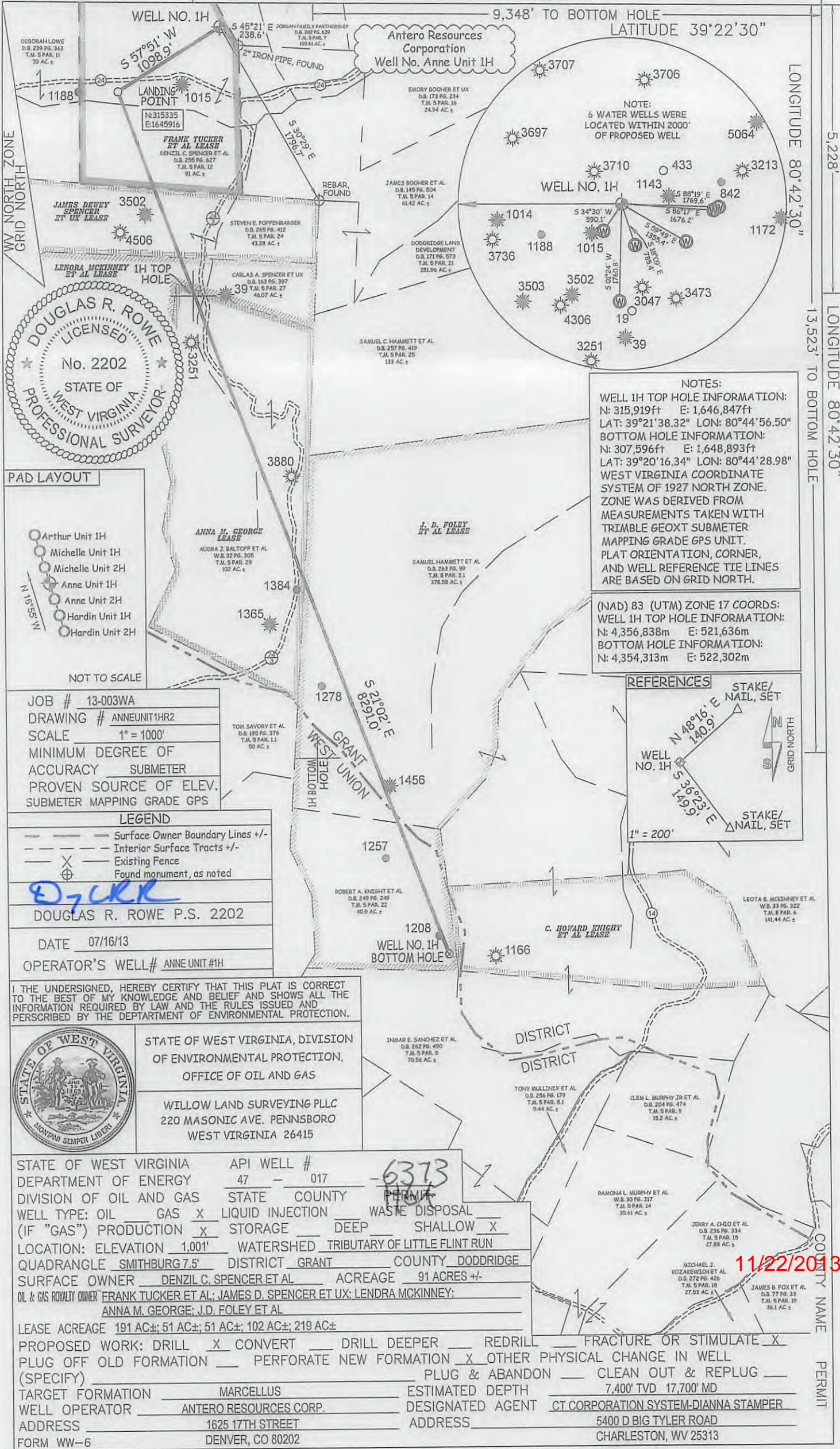
11/22/2013



LATITUDE 39°22'30"

11,506'

9,348' TO BOTTOM HOLE  
LATITUDE 39°22'30"



5,228'  
LONGITUDE 80°42'30"

13,523' TO BOTTOM HOLE  
LONGITUDE 80°42'30"

WELL NO. 1H  
S 57°51' W 1098.9'  
LANDING POINT 1015  
N 315335 E 1645916  
FRANK TUCKER ET AL LEASE  
DENZIL C. SPENCER ET AL  
D.B. 255 PG. 627  
T.M. 5 PAR. 12  
91 AC. ±

Antero Resources Corporation  
Well No. Anne Unit 1H

NOTE:  
6 WATER WELLS WERE  
LOCATED WITHIN 2000'  
OF PROPOSED WELL

DOUGLAS R. ROWE  
LICENSED  
No. 2202  
STATE OF  
WEST VIRGINIA  
PROFESSIONAL SURVEYOR

NOTES:  
WELL 1H TOP HOLE INFORMATION:  
N: 315,919ft E: 1,646,847ft  
LAT: 39°21'38.32" LON: 80°44'56.50"  
BOTTOM HOLE INFORMATION:  
N: 307,596ft E: 1,648,893ft  
LAT: 39°20'16.34" LON: 80°44'28.98"  
WEST VIRGINIA COORDINATE  
SYSTEM OF 1927 NORTH ZONE.  
ZONE WAS DERIVED FROM  
MEASUREMENTS TAKEN WITH  
TRIMBLE GEOXT SUBMETER  
MAPPING GRADE GPS UNIT.  
PLAT ORIENTATION, CORNER,  
AND WELL REFERENCE TIE LINES  
ARE BASED ON GRID NORTH.

(NAD) 83 (UTM) ZONE 17 COORDS:  
WELL 1H TOP HOLE INFORMATION:  
N: 4,356,838m E: 521,636m  
BOTTOM HOLE INFORMATION:  
N: 4,354,313m E: 522,302m

PAD LAYOUT  
Arthur Unit 1H  
Michelle Unit 1H  
Michelle Unit 2H  
Anne Unit 1H  
Anne Unit 2H  
Hardin Unit 1H  
Hardin Unit 2H  
NOT TO SCALE

JOB # 13-003WA  
DRAWING # ANNEUNIT1HR2  
SCALE 1" = 1000'  
MINIMUM DEGREE OF  
ACCURACY SUBMETER  
PROVEN SOURCE OF ELEV.  
SUBMETER MAPPING GRADE GPS

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

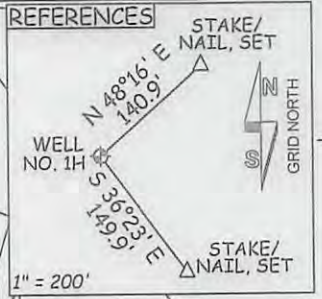
DOUGLAS R. ROWE P.S. 2202  
DATE 07/16/13  
OPERATOR'S WELL# ANNEUNIT#1H

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 DEPARTMENT OF ENVIRONMENTAL PROTECTION.

STATE OF WEST VIRGINIA, DIVISION  
OF ENVIRONMENTAL PROTECTION,  
OFFICE OF OIL AND GAS  
WILLOW LAND SURVEYING PLLC  
220 MASONIC AVE. PENNSBORO  
WEST VIRGINIA 26415

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY  
DIVISION OF OIL AND GAS  
WELL TYPE: OIL GAS  LIQUID INJECTION WASTE DISPOSAL  
(IF "GAS") PRODUCTION  STORAGE DEEP SHALLOW   
LOCATION: ELEVATION 1,001' WATERSHED TRIBUTARY OF LITTLE FLINT RUN  
QUADRANGLE SMITHBURG 7.5' DISTRICT GRANT COUNTY DODDRIDGE  
SURFACE OWNER DENZIL C. SPENCER ET AL ACREAGE 91 ACRES +/-  
OIL & GAS ROYALTY OWNER FRANK TUCKER ET AL; JAMES D. SPENCER ET UX; LENDRA MCKINNEY;  
ANNA M. GEORGE; J.D. FOLEY ET AL

API WELL # 47 - 017 - 6373  
PERMIT # 11/22/2013  
PROPOSED WORK: DRILL  CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE   
PLUG OFF OLD FORMATION PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL  
(SPECIFY) PLUG & ABANDON CLEAN OUT & REPLUG  
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 7,400' TVD 17,700' MD  
WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT CT CORPORATION SYSTEM-DIANNA STAMPER  
ADDRESS 1625 17TH STREET ADDRESS 5400 D BIG TYLER ROAD  
FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313



11/22/2013

COUNTY NAME PERMIT