



west virginia department of environmental protection

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

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

August 30, 2013

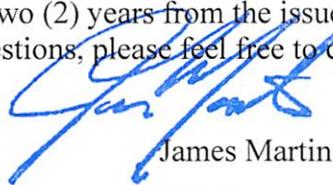
WELL WORK PERMIT
Horizontal 6A Well

This permit, API Well Number: 47-1706307, issued to ANTERO RESOURCES APPALACHIAN CORPORATION, is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days 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: TRENT UNIT 1H
Farm Name: TRENT, JOHN S. JR. & JACQUEL
API Well Number: 47-1706307
Permit Type: Horizontal 6A Well
Date Issued: 08/30/2013

Promoting a healthy environment.

PERMIT CONDITIONS

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

CONDITIONS

1. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
2. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the fill material shall be within plus or minus 2% (unless soil test results show a greater range of moisture content is appropriate and 95% compaction can still be achieved) 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.
3. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
4. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within 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.
5. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
6. 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.
7. 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.

WW - 6B
(3/13)

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

1) Well Operator: Antero Resources Appalachian Corporation 494488557 017-Doddridge Greenbrier Smithburg
Operator ID County District Quadrangle

2) Operator's Well Number: Trent Unit 1H Well Pad Name: Susie Jane Pad

3 Elevation, current ground: -1269' Elevation, proposed post-construction: 1248'

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- 60 Feet, Associated Pressure- 3250#

7) Proposed Total Vertical Depth: 7400' TVD

8) Formation at Total Vertical Depth: Marcellus

9) Proposed Total Measured Depth: 12900' MD

10) Approximate Fresh Water Strata Depths: 38', 164', 173'

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

12) Approximate Saltwater Depths: None available

13) Approximate Coal Seam Depths: 291'

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

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): 36.35 acres

19) Area to be disturbed for well pad only, less access road (acres): 3.55 acres

*DGW
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WW - 6B
(3/13)

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# | 90' | 90' | CTS, 86 Cu. Ft. |
| Fresh Water | 13-3/8" | New | J-55/H-40 | 54.5#/ 48# | 310' | 310' | CTS, 431 Cu. Ft. |
| Coal | 9-5/8" | New | J-55 | 36# | 2490' | 2490' | CTS, 1014 Cu. Ft. |
| Intermediate | | | | | | | |
| Production | 5-1/2" | New | P-110 | 20# | 12900' | 12900' | 3143 Cu. Ft. |
| Tubing | 2-3/8" | New | N-80 | 4.7# | | 7100' | |
| Liners | | | | | | | |

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7-25-2012

| 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 | RECEIVED Office of Oil and Gas | |

JUL 26 2013

17-06307

WW - 6B
(3/13)

21) Describe centralizer placement for each casing string. Conductor: no centralizers

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

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

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

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

Conductor: no additives, Class A cement.

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

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

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

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

23) Proposed borehole conditioning procedures. Conductor: blowhole clean with air, run casing, 10 bbls fresh water.

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

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

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

*Note: Attach additional sheets as needed.

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Environmental Protection

17-06307

WW-9
(5/13)

Page _____ of _____
API Number 47 - 017 - _____
Operator's Well No. Trent Unit 1H _____

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Antero Resources Appalachian Corporation OP Code 494488557

Watershed (HUC 10) Buffalo Calf Fork Quadrangle Smithburg

Elevation 1248' County Doddridge District Greenbrier

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 (*An associated frac pit will be used for flowback fluids)

If so, please describe anticipated pit waste: Drilling and Flowback Fluids

Will a synthetic liner be used in the pit? Yes X No _____ If so, what ml.? 60 mil

Proposed Disposal Method For Treated Pit Wastes:

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

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Will closed loop system be used? Yes

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

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

Additives to be used 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.

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JUL 26 2013

Company Official Signature *Cole Kilstrom*

Company Official (Typed Name) Cole Kilstrom

Company Official Title Environmental Specialist

WV Department of Environmental Protection

Subscribed and sworn before me this 20 day of June, 2013

J. Bottinelli Notary Public

My commission expires 11/9/2016

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

17-06307

Form WW-9

Operator's Well No. Trent Unit 1H

Antero Resources Appalachian Corporation

Proposed Revegetation Treatment: Acres Disturbed 36.35 Prevegetation pH _____

Lime 2-4 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

Road A (21.35) + Frac Pit (3.86) + Drill Pad (3.55) + Spoil Pad A (0.89) + Spoil Pad B (0.50) + Spoil Pad C (1.33) + Spoil Pad D (1.80) + Spoil Pad E (1.48) + Tank Offload Pad (0.48) + Truck Queue/Turnaround (1.11) = 36.35 Acres

Seed Mixtures

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

*or type of grass seed requested by surface owner

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

*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 lets to WV DEP regulation

Title: Oil & Gas Inspector

Date: 7-25-2013

Field Reviewed? Yes No

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JUL 26 2013

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17-06307

Form WW-9 Additives Attachment

SURFACE INTERVAL

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

INTERMEDIATE INTERVAL

STIFF FOAM RECIPE:

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

PRODUCTION INTERVAL

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

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JUN 26 2013

17-06307

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

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JUN 26 2013

17-06307

List of Anticipated Additives Used for Fracturing or Stimulating Well

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

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JUN 26 2013



Water Management Plan: Primary Water Sources



WMP- 01404

API/ID Number:

047-017-06307

Operator:

Antero Resources

Trent 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.

APPROVED AUG 29 2013

Source Summary

WMP-01404

API Number:

047-017-06307

Operator:

Antero Resources

Trent 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: |
| 10/14/2013 | 10/14/2014 | 5,420,000 | | 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: |
| 10/14/2013 | 10/14/2014 | 5,420,000 | | 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: |
| 10/14/2013 | 10/14/2014 | 5,420,000 | | 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:

● 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: |
| 10/14/2013 | 10/14/2014 | 5,420,000 | | 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 @ 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: |
| 10/14/2013 | 10/14/2014 | 5,420,000 | | 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:

● 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: |
| 10/14/2013 | 10/14/2014 | 5,420,000 | | 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 **McElroy Creek @ Sweeney Withdrawal** **Doddridge** Owner: **Bill Sweeney**
 Start Date End Date Total Volume (gal) Max. daily purchase (gal) Intake Latitude: Intake Longitude:
10/14/2013 10/14/2014 5,420,000 39.398123 -80.656808
 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) 6.66
 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:
10/14/2013 10/14/2014 5,420,000 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:
10/14/2013 10/14/2014 5,420,000 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:

● 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: |
| 10/14/2013 | 10/14/2014 | 5,420,000 | | 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: |
| 10/14/2013 | 10/14/2014 | 5,420,000 | | 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: |
| 10/14/2013 | 10/14/2014 | 5,420,000 | | 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:

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:
10/14/2013 10/14/2014 5,420,000 39.198369 -80.870969

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

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:
10/14/2013 10/14/2014 5,420,000 39.322363 -80.936771

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

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

DEP Comments:

Source Summary

WMP-01404

API Number:

047-017-06307

Operator:

Antero Resources

Trent 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: |
|------------|------------|--------------------|---------------------------|------------------|-------------------|
| 10/14/2013 | 10/14/2014 | 5,420,000 | 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: |
|------------|------------|--------------------|---------------------------|------------------|-------------------|
| 10/14/2013 | 10/14/2014 | 5,420,000 | 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: |
|------------|------------|--------------------|---------------------------|------------------|-------------------|
| 10/14/2013 | 10/14/2014 | 5,420,000 | | - | - |

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.

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: |
| 10/14/2013 | 10/14/2014 | 5,420,000 | 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:

Source Detail

WMP- 01404

API/ID Number: 047-017-06307

Operator:

Antero Resources

Trent Unit 1H

Source ID: 23284 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

Anticipated withdrawal start date: 10/14/2013

Anticipated withdrawal end date: 10/14/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 5,420,000

Trout Stream?

Tier 3?

Max. Pump rate (gpm): 1,680

Regulated Stream? Ohio River Min. Flow

Max. Simultaneous Trucks:

Proximate PSD?

Max. Truck pump rate (gpm):

Gauged Stream?

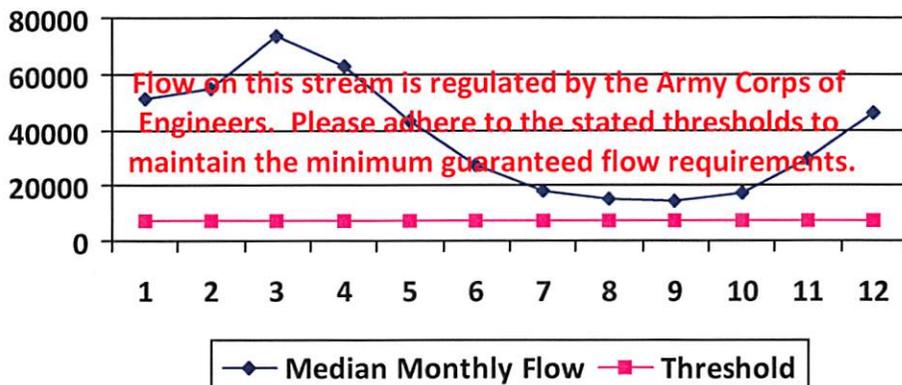
Reference Gaug 9999998 Ohio River Station: Racine Dam

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.

Source Detail

WMP-01404

API/ID Number: 047-017-06307

Operator: Antero Resources

Trent Unit 1H

Source ID: 23285 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: 10/14/2013

Anticipated withdrawal end date: 10/14/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 5,420,000

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?

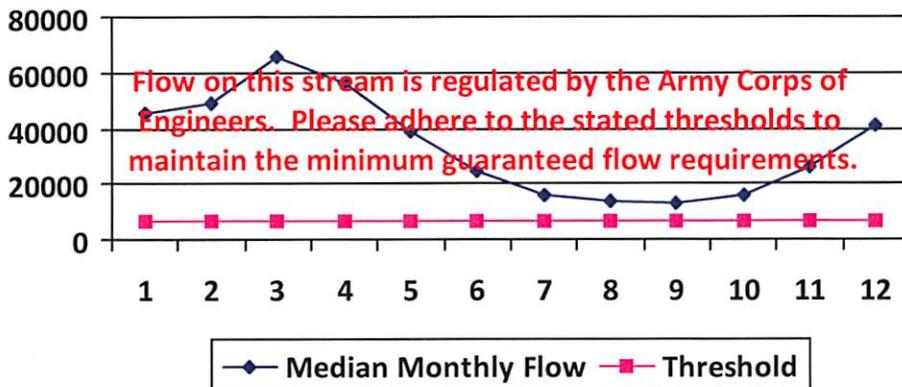
Reference Gaug 9999999 Ohio River Station: Willow Island Lock & Dam

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.

Source Detail

WMP-01404

API/ID Number: 047-017-06307

Operator:

Antero Resources

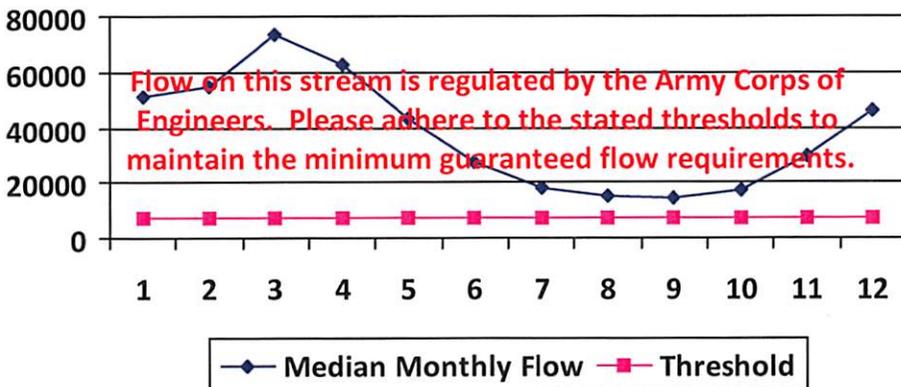
Trent Unit 1H

| | | | |
|---|--|---|---|
| Source ID: | 23286 | 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: 10/14/2013 |
| | | | Anticipated withdrawal end date: 10/14/2014 |
| <input type="checkbox"/> Endangered Species? | <input checked="" type="checkbox"/> Mussel Stream? | | Total Volume from Source (gal): 5,420,000 |
| <input type="checkbox"/> Trout Stream? | <input type="checkbox"/> Tier 3? | | Max. Pump rate (gpm): |
| <input checked="" type="checkbox"/> Regulated Stream? | | | Max. Simultaneous Trucks: 0 |
| <input checked="" type="checkbox"/> Proximate PSD? | Claywood Park PSD | | Max. Truck pump rate (gpm): 0 |
| <input checked="" type="checkbox"/> Gauged Stream? | | | |

| | | | |
|--------------------------|-----------|--------------------------------|------|
| 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.

Source Detail

WMP- 01404

API/ID Number: 047-017-06307

Operator:

Antero Resources

Trent Unit 1H

Source ID: 23287 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: 10/14/2013

Anticipated withdrawal end date: 10/14/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 5,420,000

Trout Stream?

Tier 3?

Max. Pump rate (gpm):

Regulated Stream? Stonewall Jackson Dam

Max. Simultaneous Trucks:

Proximate PSD?

Max. Truck pump rate (gpm):

Gauged Stream?

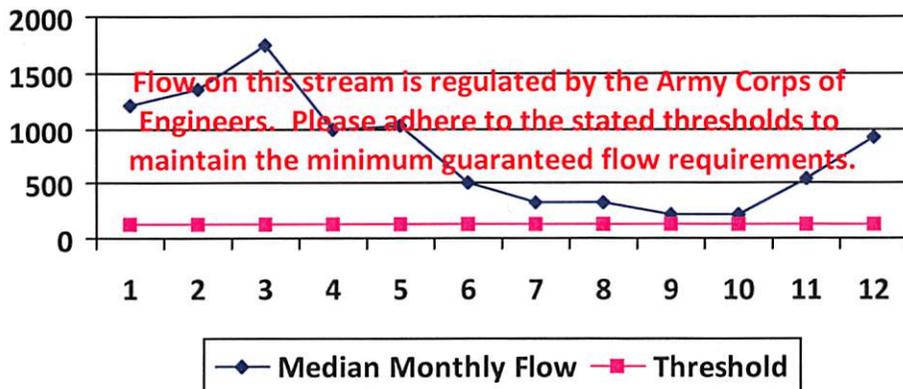
Reference Gaug: 3061000 WEST FORK RIVER AT ENTERPRISE, WV

Drainage Area (sq. mi.): 759.00

Gauge Threshold (cfs): 234

| Month | Median monthly flow (cfs) | Threshold (+ pump) | Estimated Available water (cfs) |
|-------|---------------------------|--------------------|---------------------------------|
| 1 | 1,200.75 | - | - |
| 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.

Source Detail

WMP- 01404

API/ID Number: 047-017-06307

Operator:

Antero Resources

Trent Unit 1H

Source ID: 23270 Source Name: Ohio River @ Ben's Run Withdrawal Site
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

Anticipated withdrawal start date: 10/14/2013

Anticipated withdrawal end date: 10/14/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 5,420,000

Trout Stream?

Tier 3?

Max. Pump rate (gpm): 3,360

Regulated Stream? Ohio River Min. Flow

Max. Simultaneous Trucks: 0

Proximate PSD?

Max. Truck pump rate (gpm): 0

Gauged Stream?

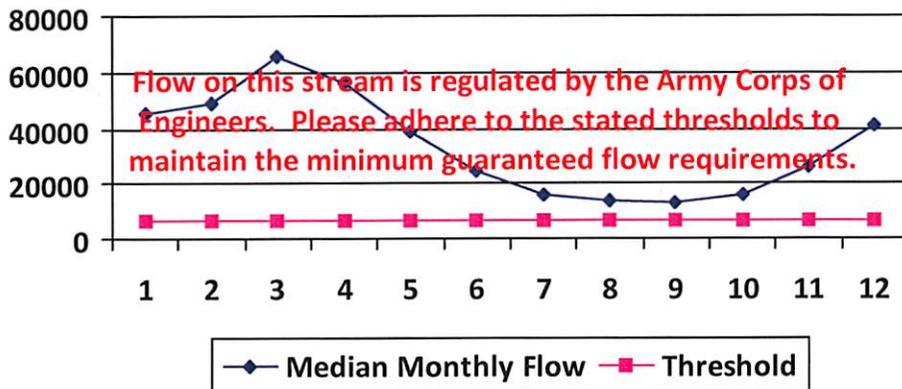
Reference Gaug 9999999 Ohio River Station: Willow Island Lock & Dam

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): 7.49
 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.

Source Detail

WMP- 01404

API/ID Number: 047-017-06307

Operator:

Antero Resources

Trent Unit 1H

Source ID: 23271 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: 10/14/2013

Anticipated withdrawal end date: 10/14/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 5,420,000

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?

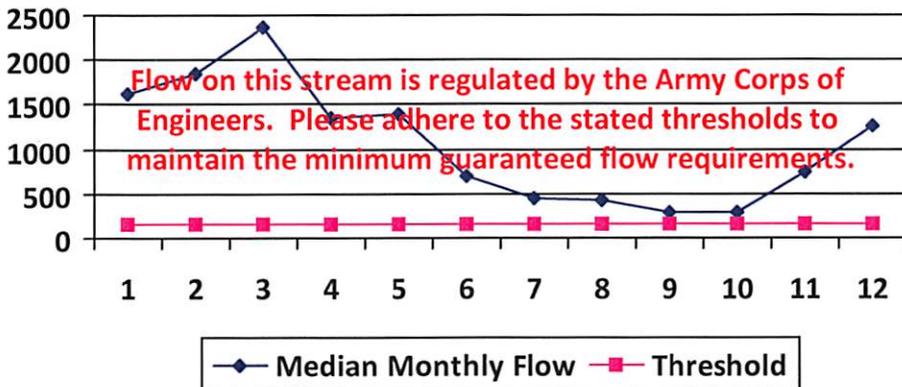
Reference Gaug: 3061000 WEST FORK RIVER AT ENTERPRISE, WV

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.

Source Detail

WMP- 01404

API/ID Number: 047-017-06307

Operator:

Antero Resources

Trent Unit 1H

Source ID: 23272 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: 10/14/2013

Anticipated withdrawal end date: 10/14/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 5,420,000

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?

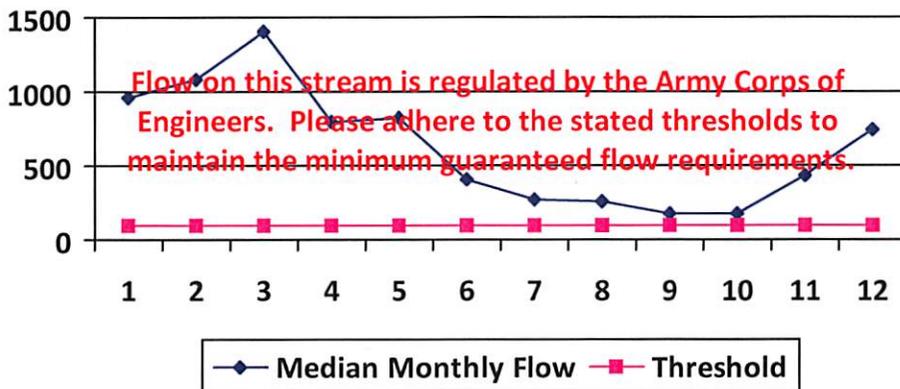
Reference Gaug: 3061000 WEST FORK RIVER AT ENTERPRISE, WV

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.

Source Detail

WMP- 01404

API/ID Number: 047-017-06307

Operator:

Antero Resources

Trent Unit 1H

Source ID: 23273 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: 10/14/2013

Anticipated withdrawal end date: 10/14/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 5,420,000

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?

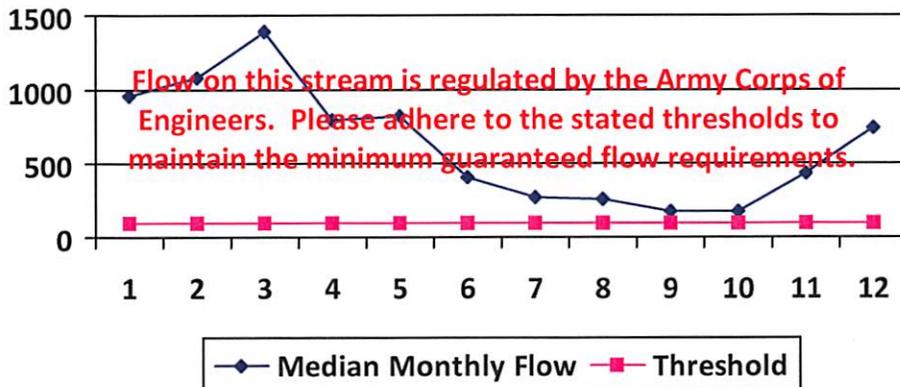
Reference Gaug: 3061000 WEST FORK RIVER AT ENTERPRISE, WV

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.

Source Detail

WMP- 01404

API/ID Number: 047-017-06307

Operator:

Antero Resources

Trent Unit 1H

Source ID: 23274 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: 10/14/2013

Anticipated withdrawal end date: 10/14/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 5,420,000

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?

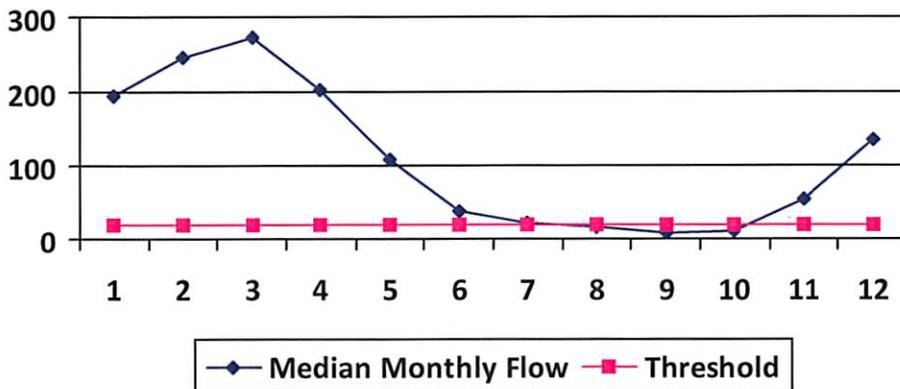
Reference Gaug: 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

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.

Source Detail

WMP- 01404

API/ID Number: 047-017-06307

Operator:

Antero Resources

Trent Unit 1H

Source ID: 23275 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: 10/14/2013

Anticipated withdrawal end date: 10/14/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 5,420,000

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?

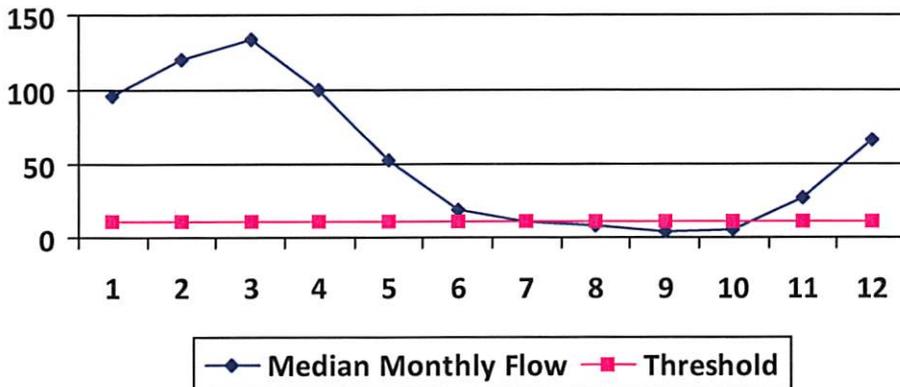
Reference Gaug: 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.): 458.00

Gauge Threshold (cfs): 45

| Month | Median monthly flow (cfs) | Threshold (+ pump) | Estimated Available water (cfs) |
|-------|---------------------------|--------------------|---------------------------------|
| 1 | 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.

Source Detail

WMP- 01404

API/ID Number: 047-017-06307

Operator:

Antero Resources

Trent Unit 1H

Source ID: 23276 Source Name: McElroy Creek @ Sweeney Withdrawal
Bill Sweeney

Source Latitude: 39.398123

Source Longitude: -80.656808

HUC-8 Code: 5030201

Drainage Area (sq. mi.): 45.16 County: Doddridge

Anticipated withdrawal start date: 10/14/2013

Anticipated withdrawal end date: 10/14/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 5,420,000

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?

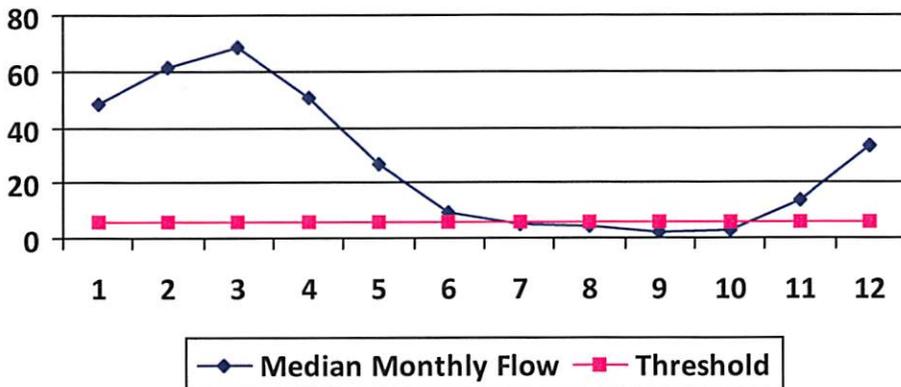
Reference Gaug: 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.): 458.00

Gauge Threshold (cfs): 45

| Month | Median monthly flow (cfs) | Threshold (+ pump) | Estimated Available water (cfs) |
|-------|---------------------------|--------------------|---------------------------------|
| 1 | 48.43 | 8.88 | 39.93 |
| 2 | 60.92 | 8.88 | 52.42 |
| 3 | 68.17 | 8.88 | 59.67 |
| 4 | 50.62 | 8.88 | 42.12 |
| 5 | 26.70 | 8.88 | 18.21 |
| 6 | 9.32 | 8.88 | 0.83 |
| 7 | 5.28 | 8.88 | -3.22 |
| 8 | 4.34 | 8.88 | -4.15 |
| 9 | 2.23 | 8.88 | -6.27 |
| 10 | 2.80 | 8.88 | -5.70 |
| 11 | 13.65 | 8.88 | 5.16 |
| 12 | 33.36 | 8.88 | 24.86 |

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs): 4.44

Upstream Demand (cfs): 0.00

Downstream Demand (cfs): 0.00

Pump rate (cfs): 2.23

Headwater Safety (cfs): 1.11

Ungauged Stream Safety (cfs): 1.11

Min. Gauge Reading (cfs): 69.73

Passby at Location (cfs): 6.66

"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.

Source Detail

WMP- 01404

API/ID Number: 047-017-06307

Operator:

Antero Resources

Trent Unit 1H

Source ID: 23277 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

Anticipated withdrawal start date: 10/14/2013

Anticipated withdrawal end date: 10/14/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 5,420,000

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?

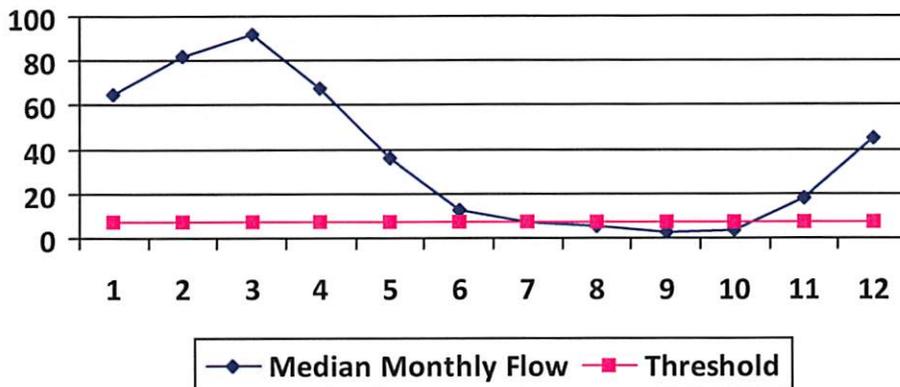
Reference Gaug: 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.): 458.00

Gauge Threshold (cfs): 45

| Month | Median monthly flow (cfs) | Threshold (+ pump) | Estimated Available water (cfs) |
|-------|---------------------------|--------------------|---------------------------------|
| 1 | 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.

Source Detail

WMP- 01404

API/ID Number: 047-017-06307

Operator:

Antero Resources

Trent Unit 1H

Source ID: 23278 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: 10/14/2013

Anticipated withdrawal end date: 10/14/2014

Endangered Species? Mussel Stream?

Trout Stream? Tier 3?

Total Volume from Source (gal): 5,420,000

Regulated Stream?

Max. Pump rate (gpm): 1,000

Proximate PSD?

Max. Simultaneous Trucks: 0

Gauged Stream?

Max. Truck pump rate (gpm) 0

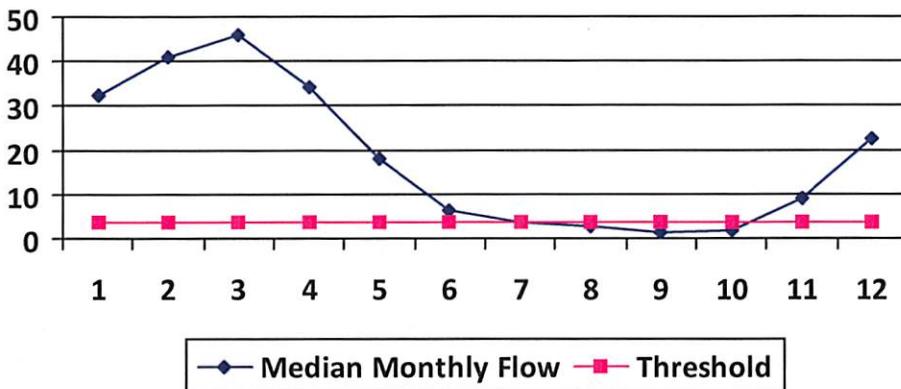
Reference Gaug 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.) 458.00

Gauge Threshold (cfs): 45

| Month | Median monthly flow (cfs) | Threshold (+ pump) | Estimated Available water (cfs) |
|-------|---------------------------|--------------------|---------------------------------|
| 1 | 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.

Source Detail

WMP- 01404

API/ID Number: 047-017-06307

Operator:

Antero Resources

Trent Unit 1H

Source ID: 23279 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

Anticipated withdrawal start date: 10/14/2013

Anticipated withdrawal end date: 10/14/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 5,420,000

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?

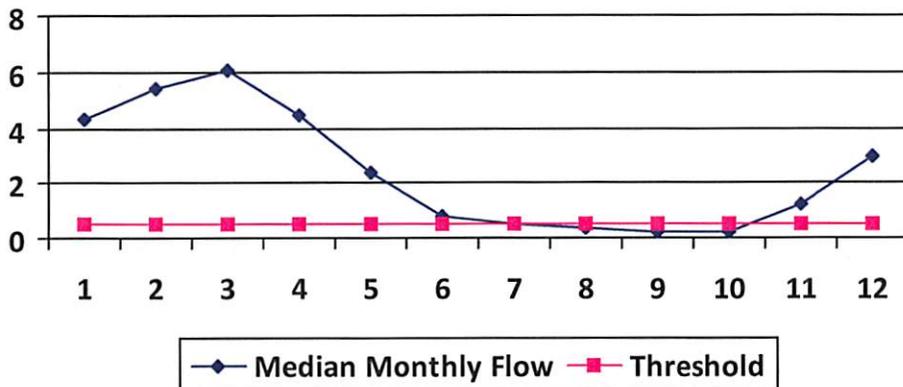
Reference Gaug 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.) 458.00

Gauge Threshold (cfs): 45

| Month | Median monthly flow (cfs) | Threshold (+ pump) | Estimated Available water (cfs) |
|-------|---------------------------|--------------------|---------------------------------|
| 1 | 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.

Source Detail

WMP- 01404

API/ID Number: 047-017-06307

Operator:

Antero Resources

Trent Unit 1H

Source ID: 23280 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

Anticipated withdrawal start date: 10/14/2013

Anticipated withdrawal end date: 10/14/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 5,420,000

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?

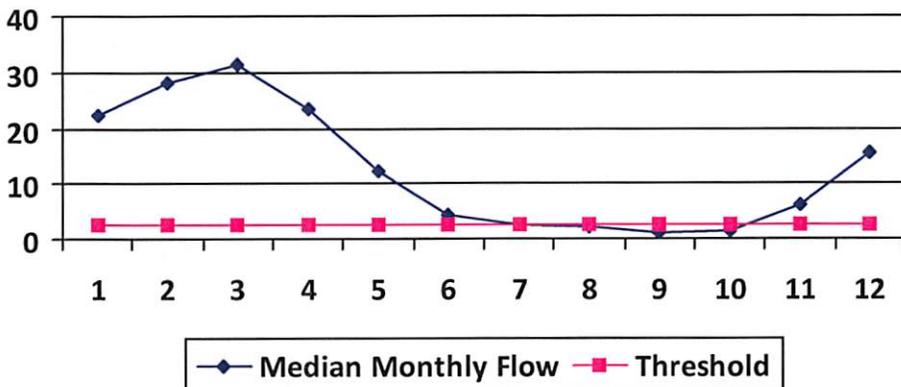
Reference Gaug: 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.): 458.00

Gauge Threshold (cfs): 45

| Month | Median monthly flow (cfs) | Threshold (+ pump) | Estimated Available water (cfs) |
|-------|---------------------------|--------------------|---------------------------------|
| 1 | 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

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.

Source Detail

WMP-01404

API/ID Number: 047-017-06307

Operator:

Antero Resources

Trent Unit 1H

Source ID: 23281 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: 10/14/2013

Anticipated withdrawal end date: 10/14/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 5,420,000

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?

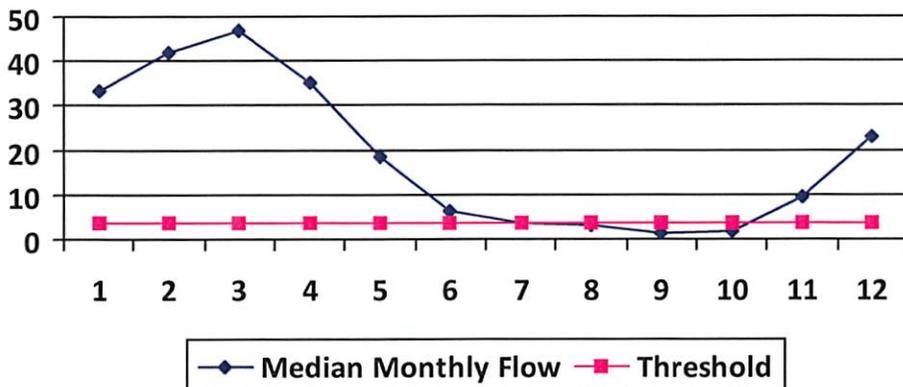
Reference Gaug: 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

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.

Source Detail

WMP- 01404

API/ID Number: 047-017-06307

Operator: Antero Resources

Trent Unit 1H

Source ID: 23282 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: 10/14/2013

Anticipated withdrawal end date: 10/14/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 5,420,000

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?

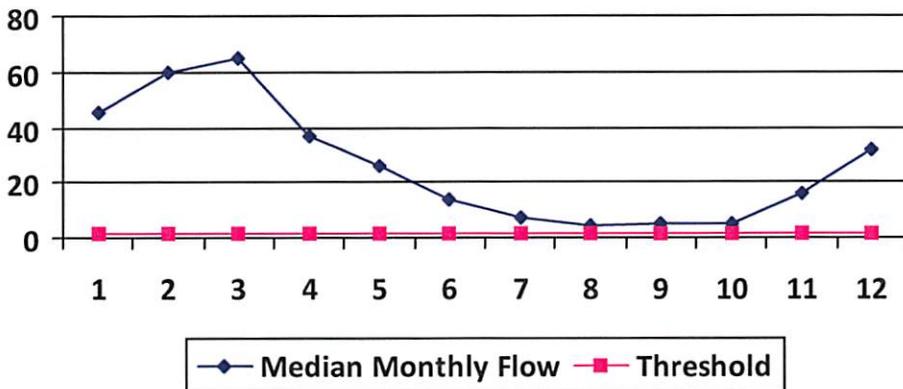
Reference Gaug: 3155220 SOUTH FORK HUGHES RIVER BELOW MACFARLAN, WV

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

Min. Gauge Reading (cfs): 39.80

Passby at Location (cfs): 1.95

"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.

Source Detail

WMP- 01404

API/ID Number: 047-017-06307

Operator:

Antero Resources

Trent Unit 1H

Source ID: 23283 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: 10/14/2013

Anticipated withdrawal end date: 10/14/2014

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 5,420,000

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?

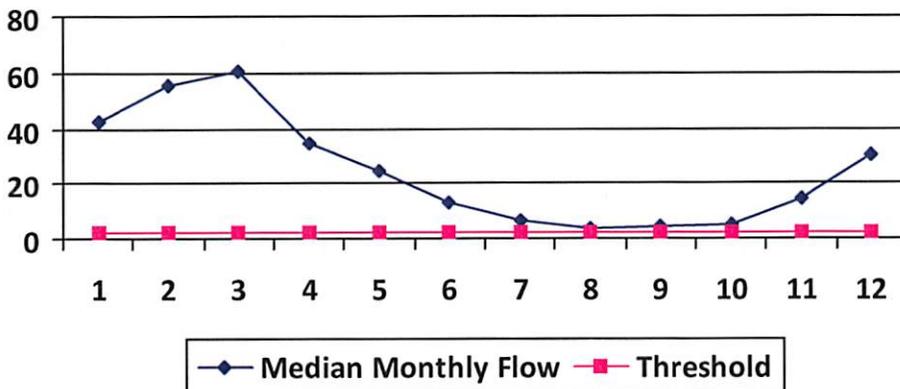
Reference Gaug: 3155220 SOUTH FORK HUGHES RIVER BELOW MACFARLAN, WV

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.



Water Management Plan: Secondary Water Sources



| | | | | |
|---------------|---------------|---------------|-----------|------------------|
| WMP-01404 | API/ID Number | 047-017-06307 | Operator: | Antero Resources |
| Trent 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: | 23288 | Source Name | City of Salem Reservoir (Lower Dog Run) Public Water Provider | | Source start date: | 10/14/2013 |
| | | | | | Source end date: | 10/14/2014 |
| Source Lat: | 39.28834 | Source Long: | -80.54966 | County | Harrison | |
| Max. Daily Purchase (gal) | 1,000,000 | Total Volume from Source (gal): | 5,420,000 | | | |
| DEP Comments: | | | | | | |

Trent 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.

| | | | | |
|------------------|---------------------------|----------------|---------------------------------|------------|
| Source ID: 23289 | Source Name | Pennsboro Lake | Source start date: | 10/14/2013 |
| | | | Source end date: | 10/14/2014 |
| | Source Lat: | 39.281689 | Source Long: | -80.925526 |
| | | | County | Ritchie |
| | Max. Daily Purchase (gal) | | Total Volume from Source (gal): | 5,420,000 |

DEP Comments:

| | | | | |
|------------------|---------------------------|---|---------------------------------|------------|
| Source ID: 23290 | Source Name | Powers Lake (Wilderness Water Park Dam) | Source start date: | 10/14/2013 |
| | | Private Owner | Source end date: | 10/14/2014 |
| | Source Lat: | 39.255752 | Source Long: | -80.463262 |
| | | | County | Harrison |
| | Max. Daily Purchase (gal) | | Total Volume from Source (gal): | 5,420,000 |

DEP Comments:

Trent 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.

| | | | | | | | |
|------------|-------|---------------------------|-----------------|---------------------------------|--------------------|------------|----------|
| Source ID: | 23291 | Source Name | Powers Lake Two | | Source start date: | 10/14/2013 | |
| | | | | | Source end date: | 10/14/2014 | |
| | | Source Lat: | 39.247604 | Source Long: | -80.466642 | County | Harrison |
| | | Max. Daily Purchase (gal) | | Total Volume from Source (gal): | | 5,420,000 | |

DEP Comments:

Trent 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.

Other

| | | | | | |
|------------------|---------------------------|----------------------------|---------------------------------|--------------------|-----------------|
| Source ID: 23292 | Source Name | Poth Lake (Landowner Pond) | | Source start date: | 10/14/2013 |
| | | Private Owner | | Source end date: | 10/14/2014 |
| | Source Lat: | 39.221306 | Source Long: | -80.463028 | County Harrison |
| | Max. Daily Purchase (gal) | | Total Volume from Source (gal): | 5,420,000 | |

DEP Comments:

| | | | | | |
|------------------|---------------------------|----------------------------------|---------------------------------|--------------------|----------------|
| Source ID: 23293 | Source Name | Williamson Pond (Landowner Pond) | | Source start date: | 10/14/2013 |
| | | | | Source end date: | 10/14/2014 |
| | Source Lat: | 39.19924 | Source Long: | -80.886161 | County Ritchie |
| | Max. Daily Purchase (gal) | | Total Volume from Source (gal): | 5,420,000 | |

DEP Comments:

Trent 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.

| | | | | |
|------------------|---------------------------|----------------------------|---------------------------------|------------|
| Source ID: 23294 | Source Name | Eddy Pond (Landowner Pond) | Source start date: | 10/14/2013 |
| | | | Source end date: | 10/14/2014 |
| | Source Lat: | 39.19924 | Source Long: | -80.886161 |
| | | | County | Ritchie |
| | Max. Daily Purchase (gal) | | Total Volume from Source (gal): | 5,420,000 |

DEP Comments:

| | | | | |
|------------------|---------------------------|--|---------------------------------|------------|
| Source ID: 23295 | Source Name | Hog Lick Quarry Industrial Facility | Source start date: | 10/14/2013 |
| | | | Source end date: | 10/14/2014 |
| | Source Lat: | 39.419272 | Source Long: | -80.217941 |
| | | | County | Marion |
| | Max. Daily Purchase (gal) | 1,000,000 | Total Volume from Source (gal): | 5,420,000 |

DEP Comments:

WMP- 01404

API/ID Number: 047-017-06307

Operator:

Antero Resources

Trent Unit 1H

Important:

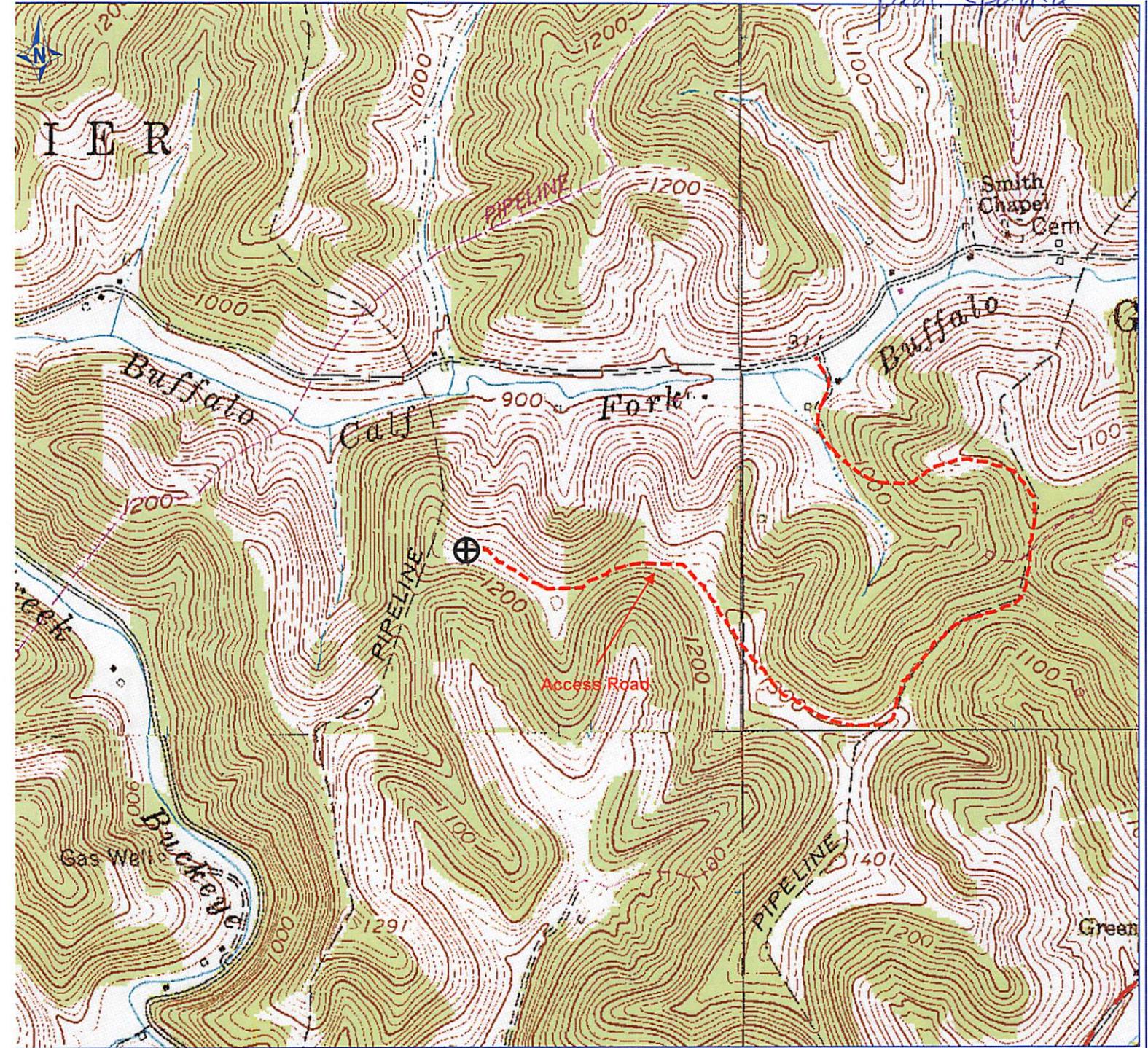
For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies.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

| | | | | | | |
|---------------------------|-----------|---------------------------------|--|--------|--------------------|------------|
| Source ID: | 23296 | Source Name | Glade Fork Mine Industrial Facility | | Source start date: | 10/14/2013 |
| | | | | | Source end date: | 10/14/2014 |
| Source Lat: | 38.965767 | Source Long: | -80.299313 | County | Upshur | |
| Max. Daily Purchase (gal) | 1,000,000 | Total Volume from Source (gal): | 5,420,000 | | | |
| DEP Comments: | | | | | | |

Recycled Frac Water

| | | | | | | |
|---------------------------|-------|---------------------------------|--------------|--------|--------------------|------------|
| Source ID: | 23297 | Source Name | Mountain 141 | | Source start date: | 10/14/2013 |
| | | | | | Source end date: | 10/14/2014 |
| Source Lat: | | Source Long: | | County | | |
| Max. Daily Purchase (gal) | | Total Volume from Source (gal): | 5,420,000 | | | |
| DEP Comments: | | | | | | |



ETRA 4/25/2013 12:49:05 PM

Received
Office of Oil & Gas

JUN 26 2013

Antero Resources Corp

APPALACHIAN BASIN

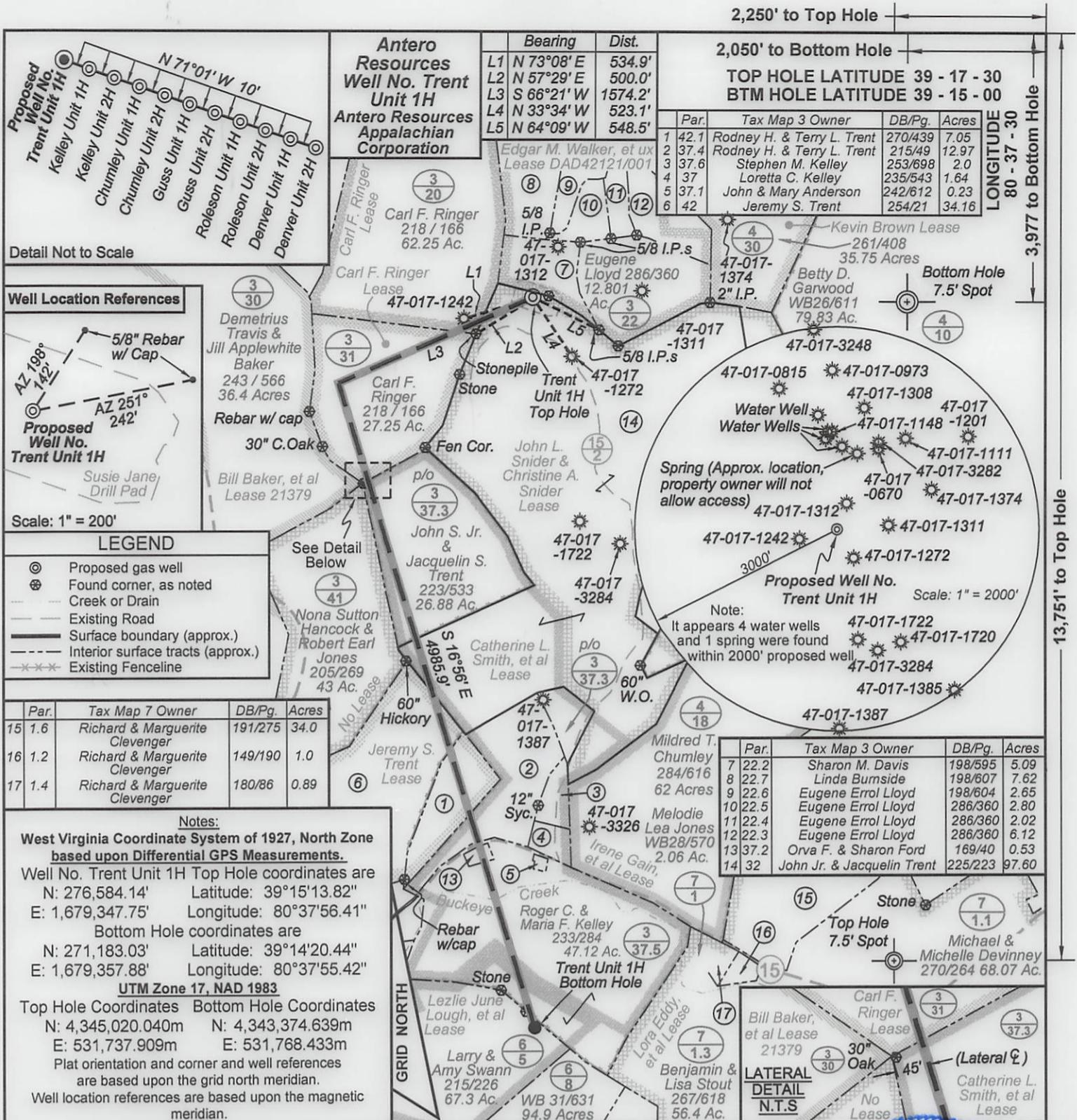
Trent Unit 1H

Doddridge County

REMARKS
 QUADRANGLE: NEW MILTON, SMITHBU
 WATERSHED: BUFFALO CALF FORK
 DISTRICT: GREENBRIER

By: ECM





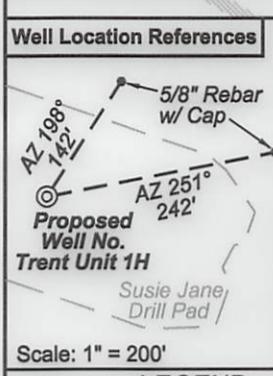
Antero Resources Well No. Trent Unit 1H
Antero Resources Appalachian Corporation

| Bearing | Dist. |
|---------------|---------|
| L1 N 73°08' E | 534.9' |
| L2 N 57°29' E | 500.0' |
| L3 S 66°21' W | 1574.2' |
| L4 N 33°34' W | 523.1' |
| L5 N 64°09' W | 548.5' |

2,250' to Top Hole
2,050' to Bottom Hole

TOP HOLE LATITUDE 39 - 17 - 30
BTM HOLE LATITUDE 39 - 15 - 00

| Par. | Tax Map 3 Owner | DB/Pg. | Acres |
|------|---------------------------------|---------|-------|
| 1 | 42.1 Rodney H. & Terry L. Trent | 270/439 | 7.05 |
| 2 | 37.4 Rodney H. & Terry L. Trent | 215/49 | 12.97 |
| 3 | 37.6 Stephen M. Kelley | 253/698 | 2.0 |
| 4 | 37 Loretta C. Kelley | 235/543 | 1.64 |
| 5 | 37.1 John & Mary Anderson | 242/612 | 0.23 |
| 6 | 42 Jeremy S. Trent | 254/21 | 34.16 |



LEGEND

- Proposed gas well
- Found corner, as noted
- Creek or Drain
- Existing Road
- Surface boundary (approx.)
- Interior surface tracts (approx.)
- Existing Fenceline

| Par. | Tax Map 7 Owner | DB/Pg. | Acres |
|------|------------------------------------|---------|-------|
| 15 | 1.6 Richard & Marguerite Clevenger | 191/275 | 34.0 |
| 16 | 1.2 Richard & Marguerite Clevenger | 149/190 | 1.0 |
| 17 | 1.4 Richard & Marguerite Clevenger | 180/86 | 0.89 |

Notes:
West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.
Well No. Trent Unit 1H Top Hole coordinates are N: 276,584.14' Latitude: 39°15'13.82" E: 1,679,347.75' Longitude: 80°37'56.41"
Bottom Hole coordinates are N: 271,183.03' Latitude: 39°14'20.44" E: 1,679,357.88' Longitude: 80°37'55.42"
UTM Zone 17, NAD 1983
Top Hole Coordinates N: 4,345,020.040m E: 531,737.909m
Bottom Hole Coordinates N: 4,343,374.639m E: 531,768.433m
Plat orientation and corner and well references are based upon the grid north meridian.
Well location references are based upon the magnetic meridian.

Antero Resources Well No. Trent Unit 1H
Antero Resources Appalachian Corporation

Edgar M. Walker, et ux Lease DAD42121/001

Kevin Brown Lease 261/408 35.75 Acres

Betty D. Garwood WB26/611 79.83 Ac.

John L. Snider & Christine A. Snider Lease

John S. Jr. & Jacquelin S. Trent 223/533 26.88 Ac.

Catherine L. Smith, et al Lease

Richard & Marguerite Clevenger 191/275 34.0

Richard & Marguerite Clevenger 149/190 1.0

Richard & Marguerite Clevenger 180/86 0.89

Sharon M. Davis 198/595 5.09

Linda Burnside 198/607 7.62

Eugene Errol Lloyd 198/604 2.65

Eugene Errol Lloyd 286/360 2.80

Eugene Errol Lloyd 286/360 2.02

Eugene Errol Lloyd 286/360 6.12

Orva F. & Sharon Ford 169/40 0.53

John Jr. & Jacquelin Trent 225/223 97.60

Michael & Michelle Devinney 270/264 68.07 Ac.

Bill Baker, et al Lease 21379

Carl F. Ringer Lease

Larry & Amy Swann 215/226 67.3 Ac.

Benjamin & Lisa Stout 267/618 56.4 Ac.

Lezlie June Lough, et al Lease

WB 31/631 94.9 Acres

Rebar w/cap

Stone

Top Hole 7.5' Spot

Bottom Hole 7.5' Spot

Proposed Well No. Trent Unit 1H

Note: It appears 4 water wells and 1 spring were found within 2000' proposed well.

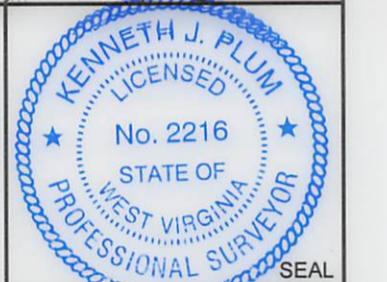
Scale: 1" = 2000'



I, the undersigned, hereby certify that this plat is correct to the best of my knowledge and belief and shows all the information required by law and the regulations issued and prescribed by the Department of Environmental Protection.

Kenneth J. Plum

Kenneth J. Plum, P.S. 2216



FILE NO: 118-30-G-13
DRAWING NO: 118-13 Trent 1H Well Plat
SCALE: 1" = 1000'
MINIMUM DEGREE OF ACCURACY: Submeter
PROVEN SOURCE OF ELEVATION: WVDOT, Bridgeport, WV

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OIL AND GAS DIVISION

DATE: April 30 2013
OPERATOR'S WELL NO. Trent Unit 1H
API WELL NO
47 - 017 - 06307
STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
LOCATION: ELEVATION: 1248' WATERSHED: Buffalo Calf Fork QUADRANGLE: New Milton & Smithburg
DISTRICT: Greenbrier COUNTY: Doddridge
SURFACE OWNER: John S. Jr. & Jacquelin S. Trent Carl F. Ringer (2); Jeremy S. Trent ACREAGE: 97.60 27.25
Lezlie June Lough, et al 62.25; 44
ROYALTY OWNER: John L. Snider & Christine A. Snider; Catherine L. Smith, et al LEASE NO: ACREAGE: 98.9; 36; 100
PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY)
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 7,400' TVD 12,900' MD

WELL OPERATOR: Antero Resources Appalachian Corporation DESIGNATED AGENT: Dianna Stamper - CT Corporation System
ADDRESS: 1625 17th Street ADDRESS: 5400 D Big Tyler Road
Denver, CO 80202 Charleston, WV 25313