October 28, 2013

WELL WORK PERMIT

Horizontal 6A Well

This permit, API Well Number: 47-1706379, 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: RICHARD UNIT 1H
Farm Name: NELSON, ERIC E., ET AL

API Well Number: 47-1706379
Permit Type: Horizontal 6A Well
Date Issued: 10/28/2013

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

1) Well Operator: Antero Resources Corporation 4944888557 017-Doddridge Greenbrier Big Isaac 7.5' Operator ID

2) Operator’s Well Number: Richard Unit 1H Well Pad Name: Hughes Pad

3) Elevation, current ground: ~1360' Elevation, proposed post-construction: 1331'

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: 7,500' TVD, Anticipated Thickness - 60 Feet, Associated Pressure - 3250#

7) Proposed Total Vertical Depth: 7,500' TVD

8) Formation at Total Vertical Depth: Marcellus

9) Proposed Total Measured Depth: 15,800' MD

10) Approximate Fresh Water Strata Depths: 125', 472'

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

12) Approximate Saltwater Depths: 545', 1952'

13) Approximate Coal Seam Depths: 407', 727'

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 fresh water 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 96 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): 3.04 acres

19) Area to be disturbed for well pad only, less access road (acres): 0.04 acres

Received
Office of Oil & Gas

11/01/2013
## CASING AND TUBING PROGRAM

<table>
<thead>
<tr>
<th>TYPE</th>
<th>Size</th>
<th>New or Used</th>
<th>Grade</th>
<th>Weight per ft.</th>
<th>FOOTAGE: For Drilling</th>
<th>INTERVALS: Left in Well</th>
<th>CEMENT: Fill-up (Cu. Ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conductor</td>
<td>20&quot;</td>
<td>New</td>
<td>H-40</td>
<td>94#</td>
<td>40'</td>
<td>40'</td>
<td>CTS, 38 Cu. Ft.</td>
</tr>
<tr>
<td>Fresh Water</td>
<td>13-3/8&quot;</td>
<td>New</td>
<td>J-55/H-40</td>
<td>54.5#/48#</td>
<td>530'</td>
<td>530' *see above</td>
<td>CTS, 736 Cu. Ft.</td>
</tr>
<tr>
<td>Intermediate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Production</td>
<td>5-1/2&quot;</td>
<td>New</td>
<td>P-110</td>
<td>20#</td>
<td>15800'</td>
<td>15800'</td>
<td>3955 Cu. Ft.</td>
</tr>
<tr>
<td>Tubing</td>
<td>2-3/8&quot;</td>
<td>New</td>
<td>N-80</td>
<td>4.7#</td>
<td>7100'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liners</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

## PACKERS

<table>
<thead>
<tr>
<th>Kind:</th>
<th>N/A</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sizes:</td>
<td>N/A</td>
<td></td>
</tr>
<tr>
<td>Depths Set:</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

Received               
Office of Oil & Gas

Page 2 of 3
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: Tall cement- Class H + 45 PPS Calcium Carbonate + 1.0% FL-160 + 0.2% ACGB-47 + 0.05% ACSA-51 + 0.2% ACR-20

23) Proposed borehole conditioning procedures.

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

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

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

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

*Note: Attach additional sheets as needed.
STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name: Antero Resources Corporation
Operator's Well No.: Richard 7-11
API Number: 47-017
OP Code: 494488557
Watershed (HUC 10): Standings Run of Meathouse Fork Quadrangle: Big Isaac 7.5'
Elevation: 1331' County: Doddridge
District: Greenbrier

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes ___ No __
If so, please describe anticipated pit waste: No pit will be used at this site. Drilling/flowback fluids will be stored in tanks. Cuttings will be confined and turned off site.

Will a synthetic liner be used in the pit? Yes ___ No ___ If so, what ml? ___
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)

Will closed loop system be used? Yes ___
Drilling medium anticipated for this well? Air, freshwater, oil based, etc., Synthetic, petroleum, etc. N/A
-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
-If 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: ____________________________
Company Official (Typed Name): Cole Klistrom
Company Official Title: Environmental Specialist
Received: ____________________________
Office of Oil & Gas

Subscribed and sworn before me this ___ day of ___ , 2013.
Notary Public
My Commission Expires Nov 9, 2016

11/01/2013
Antero Resources Corporation

Proposed Revegetation Treatment: Acres Disturbed 16.51
Prevegetation pH

Lime 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

New Drill Pad (3.83) + New Access Road (4.80) + New Drill Pad Access Road (2.76) + New Water Storage Pad (2.73) + New Water Storage, Access Road (0.3) + New Spoil Pads (5.52) = 16.51 Acres

Seed Mixtures

<table>
<thead>
<tr>
<th>Seed Type</th>
<th>Area I (Temporary)</th>
<th>Area II (Permanent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tall Fescue</td>
<td>45 lbs/acre</td>
<td>Tall Fescue</td>
</tr>
<tr>
<td>Perennial Rye</td>
<td>20 lbs/acre</td>
<td>Perennial Rye</td>
</tr>
</tbody>
</table>

*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: Seed & mulch install & maintain to Wv Dep regulations

Title: Oil & Gas Inspector
Date: 9-30-2013

Field Reviewed? ( ) Yes ( ) No

Received
Office of Oil & Gas

11/01/2013
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.
Stream/River

- **Source**: Ohio River @ Ben's Run Withdrawal Site
  - Owner: Ben's Run Land Company Limited Partnership
  - Start Date: 11/10/2014
  - End Date: 11/10/2015
  - Total Volume (gal): 8,490,000
  - Max. daily purchase (gal):
  - Intake Latitude: 39.46593
  - Intake Longitude: -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
  - Owner: James & Brenda Raines
  - Start Date: 11/10/2014
  - End Date: 11/10/2015
  - Total Volume (gal): 8,490,000
  - Max. daily purchase (gal):
  - Intake Latitude: 39.320913
  - Intake Longitude: -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
  - Owner: David Shrievess
  - Start Date: 11/10/2014
  - End Date: 11/10/2015
  - Total Volume (gal): 8,490,000
  - Max. daily purchase (gal):
  - Intake Latitude: 39.16761
  - Intake Longitude: -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:
### West Fork River @ GAL Withdrawal

- **Source**: West Fork River
- **Owner**: David Shrives
- **Start Date**: 11/10/2014
- **End Date**: 11/10/2015
- **Total Volume (gal)**: 8,490,000
- **Max. daily purchase (gal)**: 2,000
- **Intake Latitude**: 39.16422
- **Intake Longitude**: -80.45173

---

### Middle Island Creek @ Mees Withdrawal Site

- **Source**: Middle Island Creek
- **Owner**: Sarah E. Mees
- **Start Date**: 11/10/2014
- **End Date**: 11/10/2015
- **Total Volume (gal)**: 8,490,000
- **Max. daily purchase (gal)**: 3,360
- **Intake Latitude**: 39.43113
- **Intake Longitude**: -81.079567

---

### Middle Island Creek @ Dawson Withdrawal

- **Source**: Middle Island Creek
- **Owner**: Gary D. and Reilia A. Dawson
- **Start Date**: 11/10/2014
- **End Date**: 11/10/2015
- **Total Volume (gal)**: 8,490,000
- **Max. daily purchase (gal)**: 3,000
- **Intake Latitude**: 39.379292
- **Intake Longitude**: -80.867803

---

**DEP Comments:**

---

**West Virginia Department of Environmental Protection**

10/25/2013 3:44:14 PM
<table>
<thead>
<tr>
<th>Source</th>
<th>McElroy Creek @ Forest Withdrawal</th>
<th>Tyler</th>
<th>Owner: Forest C. &amp; Brenda L. Moore</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start Date</td>
<td>11/10/2014</td>
<td></td>
<td></td>
</tr>
<tr>
<td>End Date</td>
<td>11/10/2015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Volume (gal)</td>
<td>8,490,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. daily purchase (gal)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intake Latitude</td>
<td>39.39675</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intake Longitude</td>
<td>-80.738197</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulated Stream?</td>
<td>☐</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ref. Gauge ID</td>
<td>3114500</td>
<td></td>
<td>MIDDLE ISLAND CREEK AT LITTLE, WV</td>
</tr>
<tr>
<td>Max. Pump rate (gpm)</td>
<td>1,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min. Gauge Reading (cfs)</td>
<td>74.77</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min. Passby (cfs)</td>
<td>13.10</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEP Comments</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>Meathouse Fork @ Gagnon Withdrawal</th>
<th>Doddridge</th>
<th>Owner: George L. Gagnon and Susan C. Gagnon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start Date</td>
<td>11/10/2014</td>
<td></td>
<td></td>
</tr>
<tr>
<td>End Date</td>
<td>11/10/2015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Volume (gal)</td>
<td>8,490,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. daily purchase (gal)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intake Latitude</td>
<td>39.26054</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intake Longitude</td>
<td>-80.720998</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulated Stream?</td>
<td>☐</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ref. Gauge ID</td>
<td>3114500</td>
<td></td>
<td>MIDDLE ISLAND CREEK AT LITTLE, WV</td>
</tr>
<tr>
<td>Max. Pump rate (gpm)</td>
<td>1,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min. Gauge Reading (cfs)</td>
<td>71.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min. Passby (cfs)</td>
<td>11.74</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEP Comments</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>Meathouse Fork @ Whitehair Withdrawal</th>
<th>Doddridge</th>
<th>Owner: Elton Whitehair</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start Date</td>
<td>11/10/2014</td>
<td></td>
<td></td>
</tr>
<tr>
<td>End Date</td>
<td>11/10/2015</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Volume (gal)</td>
<td>8,490,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. daily purchase (gal)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intake Latitude</td>
<td>39.211317</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intake Longitude</td>
<td>-80.679592</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulated Stream?</td>
<td>☐</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ref. Gauge ID</td>
<td>3114500</td>
<td></td>
<td>MIDDLE ISLAND CREEK AT LITTLE, WV</td>
</tr>
<tr>
<td>Max. Pump rate (gpm)</td>
<td>1,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min. Gauge Reading (cfs)</td>
<td>69.73</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Min. Passby (cfs)</td>
<td>7.28</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEP Comments</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source</td>
<td>Total Volume (gal)</td>
<td>Max. daily purchase (gal)</td>
<td>Intake Latitude</td>
</tr>
<tr>
<td>---------------------------------------------</td>
<td>--------------------</td>
<td>---------------------------</td>
<td>-----------------</td>
</tr>
<tr>
<td>Tom's Fork @ Erwin Withdrawal</td>
<td>8,490,000</td>
<td>1,000</td>
<td>39.174306</td>
</tr>
<tr>
<td>Arnold Creek @ Davis Withdrawal</td>
<td>8,490,000</td>
<td>1,000</td>
<td>39.302006</td>
</tr>
<tr>
<td>Buckeye Creek @ Powell Withdrawal</td>
<td>8,490,000</td>
<td>1,000</td>
<td>39.277142</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>Max. Pump rate (gpm)</th>
<th>Min. Gauge Reading (cfs)</th>
<th>Min. Passby (cfs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tom's Fork @ Erwin Withdrawal</td>
<td>1,000</td>
<td>69.73</td>
<td>0.59</td>
</tr>
<tr>
<td>Arnold Creek @ Davis Withdrawal</td>
<td>1,000</td>
<td>69.73</td>
<td>3.08</td>
</tr>
<tr>
<td>Buckeye Creek @ Powell Withdrawal</td>
<td>1,000</td>
<td>69.73</td>
<td>4.59</td>
</tr>
</tbody>
</table>

DEP Comments:
## South Fork of Hughes River @ Knight Withdrawal

<table>
<thead>
<tr>
<th>Start Date</th>
<th>End Date</th>
<th>Total Volume (gal)</th>
<th>Max. daily purchase (gal)</th>
<th>Intake Latitude</th>
<th>Intake Longitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/10/2014</td>
<td>11/10/2015</td>
<td>8,490,000</td>
<td></td>
<td>39.198369</td>
<td>-80.870969</td>
</tr>
</tbody>
</table>

- **Regulated Stream?**
- **Ref. Gauge ID:** 3155220
- **Max. Pump rate (gpm):** 3,000
- **Min. Gauge Reading (cfs):** 39.80
- **Min. Passby (cfs):** 1.95

**DEP Comments:**

## North Fork of Hughes River @ Davis Withdrawal

<table>
<thead>
<tr>
<th>Start Date</th>
<th>End Date</th>
<th>Total Volume (gal)</th>
<th>Max. daily purchase (gal)</th>
<th>Intake Latitude</th>
<th>Intake Longitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/10/2014</td>
<td>11/10/2015</td>
<td>8,490,000</td>
<td></td>
<td>39.322363</td>
<td>-80.936771</td>
</tr>
</tbody>
</table>

- **Regulated Stream?**
- **Ref. Gauge ID:** 3155220
- **Max. Pump rate (gpm):** 1,000
- **Min. Gauge Reading (cfs):** 35.23
- **Min. Passby (cfs):** 2.19

**DEP Comments:**
# Purchased Water

<table>
<thead>
<tr>
<th>Source</th>
<th>Pleasants</th>
<th>Owner</th>
<th>Select Energy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ohio River @ Select Energy</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start Date</td>
<td>11/10/2014</td>
<td>End Date</td>
<td>11/10/2015</td>
</tr>
<tr>
<td>Total Volume (gal)</td>
<td>8,490,000</td>
<td>Max. daily purchase (gal)</td>
<td>500,000</td>
</tr>
<tr>
<td>Intake Latitude</td>
<td>39.346473</td>
<td>Intake Longitude</td>
<td>-81.338727</td>
</tr>
<tr>
<td>Regulated Stream?</td>
<td>Yes</td>
<td>Ohio River Min. Flow</td>
<td></td>
</tr>
<tr>
<td>Ref. Gauge ID</td>
<td>9999998</td>
<td>Ohio River Station: Racine Dam</td>
<td></td>
</tr>
<tr>
<td>Max. Pump rate (gpm)</td>
<td>1,680</td>
<td>Min. Gauge Reading (cfs)</td>
<td>7,216.00</td>
</tr>
<tr>
<td>Min. Passby (cfs)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEP Comments</td>
<td>Refer to the specified station on the National Weather Service's Ohio River forecast website: <a href="http://www.erh.noaa.gov/ohrfc/flows.shtml">http://www.erh.noaa.gov/ohrfc/flows.shtml</a></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>Pleasants</th>
<th>Owner</th>
<th>Solo Construction, LLC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Middle Island Creek @ Solo Construction</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start Date</td>
<td>11/10/2014</td>
<td>End Date</td>
<td>11/10/2015</td>
</tr>
<tr>
<td>Total Volume (gal)</td>
<td>8,490,000</td>
<td>Max. daily purchase (gal)</td>
<td>1,000,000</td>
</tr>
<tr>
<td>Intake Latitude</td>
<td>39.399094</td>
<td>Intake Longitude</td>
<td>-81.185548</td>
</tr>
<tr>
<td>Regulated Stream?</td>
<td>Yes</td>
<td>Ohio River Min. Flow</td>
<td></td>
</tr>
<tr>
<td>Ref. Gauge ID</td>
<td>9999999</td>
<td>Ohio River Station: Willow Island Lock &amp; Dam</td>
<td></td>
</tr>
<tr>
<td>Max. Pump rate (gpm)</td>
<td></td>
<td>Min. Gauge Reading (cfs)</td>
<td>6,468.00</td>
</tr>
<tr>
<td>Min. Passby (cfs)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEP Comments</td>
<td>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.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>Pleasants</th>
<th>Owner</th>
<th>Claywood Park PSD</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Claywood Park PSD</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start Date</td>
<td>11/10/2014</td>
<td>End Date</td>
<td>11/10/2015</td>
</tr>
<tr>
<td>Total Volume (gal)</td>
<td>8,490,000</td>
<td>Max. daily purchase (gal)</td>
<td></td>
</tr>
<tr>
<td>Intake Latitude</td>
<td></td>
<td>Intake Longitude</td>
<td>-</td>
</tr>
<tr>
<td>Regulated Stream?</td>
<td>Yes</td>
<td>Ref. Gauge ID</td>
<td>9999998</td>
</tr>
<tr>
<td>Ohio River Station: Racine Dam</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Max. Pump rate (gpm)</td>
<td></td>
<td>Min. Gauge Reading (cfs)</td>
<td>7,216.00</td>
</tr>
<tr>
<td>Min. Passby (cfs)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>DEP Comments</td>
<td>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.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Start Date</td>
<td>End Date</td>
<td>Total Volume (gal)</td>
<td>Max. daily purchase (gal)</td>
</tr>
<tr>
<td>------------</td>
<td>----------</td>
<td>--------------------</td>
<td>---------------------------</td>
</tr>
<tr>
<td>11/10/2014</td>
<td>11/10/2015</td>
<td>8,490,000</td>
<td>200,000</td>
</tr>
</tbody>
</table>

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

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

**DEP Comments:**
Source ID: 27270  Source Name: Ohio River @ Select Energy
Select Energy

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: 11/10/2014
Anticipated withdrawal end date: 11/10/2015
Total Volume from Source (gal): 8,490,000
Max. Pump rate (gpm): 1,680

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.

11/01/2013
Source Detail

WMP: 01528  API/ID Number: 047-017-06379  Operator: Antero Resources

Richard Unit 1H

Source ID: 27271  Source Name: Middle Island Creek @ Solo Construction
Solo Construction, LLC

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?  City of St. Marys
Gauged Stream?

Anticipated withdrawal start date: 11/10/2014  Anticipated withdrawal end date: 11/10/2015
Total Volume from Source (gal): 8,490,000
Max. Pump rate (gpm): Max. Simultaneous Trucks:
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

Water Availability Profile

Flow on this stream is regulated by the Army Corps of Engineers. Please adhere to the stated thresholds to maintain the minimum guaranteed flow requirements.

“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 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): -

11/01/2013

west virginia department of environmental protection

10/25/2013 3:44:14 PM
Source Detail

WMP: 01528  API/ID Number: 047-017-06379  Operator: Antero Resources

Richard Unit 1H

Source ID: 27272  Source Name: Claywood Park PSD

HUC-8 Code: 5030203  Drainage Area (sq. mi.): 25000  County: Wood

- Endangered Species?
- Trout Stream?
☑️ Regulated Stream?
☑️ Proximate PSD?
☑️ Gauged Stream?

Mussel Stream?
☐ Tier 3?

Source Latitude: -  Source Longitude: -

Anticipated withdrawal start date: 11/10/2014  Anticipated withdrawal end date: 11/10/2015

Total Volume from Source (gal): 8,490,000

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

Water Availability Profile

Flow on this stream is regulated by the Army Corps of Engineers. Please adhere to the stated thresholds to maintain the minimum guaranteed flow requirements.

"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 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): -

11/01/2013
west virginia department of environmental protection
10/25/2013 3:44:14 PM
**Source Detail**

- **Source ID:** 27273
- **Source Name:** Sun Valley Public Service District
  - Sun Valley PSD
- **HUC-8 Code:** 5020002
- **Drainage Area (sq. mi.):** 391.85
- **County:** Harrison
- **Source Latitude:** -
- **Source Longitude:** -
- **Anticipated withdrawal start date:** 11/10/2014
- **Anticipated withdrawal end date:** 11/10/2015
- **Total Volume from Source (gal):** 8,490,000
- **Max. Pump rate (gpm):**
- **Max. Simultaneous Trucks:**
- **Max. Truck pump rate (gpm):**

**Reference Gaug**
- **Reference Gaug:** 3061000
- **Gauge Threshold (cfs):** 234
- **Drainage Area (sq. mi.):** 759.00
- **WEST FORK RIVER AT ENTERPRISE, WV**

### Median Monthly Flow (cfs)

<table>
<thead>
<tr>
<th>Month</th>
<th>Median month flow (cfs)</th>
<th>Threshold (+ pump)</th>
<th>Estimated Available water (cfs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1,200.75</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>1,351.92</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>1,741.33</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>995.89</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>1,022.23</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6</td>
<td>512.21</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>331.86</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>316.87</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td>220.48</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>216.17</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>11</td>
<td>542.45</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>12</td>
<td>926.12</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Water Availability Profile**

Flow on this stream is regulated by the Army Corps of Engineers. Please adhere to the stated thresholds to maintain the minimum guaranteed flow requirements.

```
```

**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: 01528  API/ID Number: 047-017-06379  Operator: Antero Resources

Richard Unit 1H

Source ID: 27256  Source Name: Ohio River @ Ben's Run Withdrawal Site
Ben's Run Land Company Limited Partnership

HUC-8 Code: 5030201  Drainage Area (sq. mi.): 25000  County: Tyler

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

Source Latitude: 39.46593  Source Longitude: -81.110781
Anticipated withdrawal start date: 11/10/2014
Anticipated withdrawal end date: 11/10/2015
Total Volume from Source (gal): 8,490,000
Max. Pump rate (gpm): 3,360
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

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.

11/01/2013
west virginia department of environmental protection

10/25/2013 3:44:15 PM
Source Detail

WMP-01528  API/ID Number: 047-017-06379  Operator: Antero Resources
Richard Unit 1H

Source ID: 27257  Source Name: West Fork River @ JCP Withdrawal James & Brenda Raines
HUC-8 Code: 502000  County: Harrison

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

Source Latitude: 39.320913  Source Longitude: -80.337572
Anticipated withdrawal start date: 11/10/2014  Anticipated withdrawal end date: 11/10/2015
Total Volume from Source (gal): 8,490,000
Max. Pump rate (gpm): 2,000
Max. Simultaneous Trucks: 0  Max. Truck pump rate (gpm): 0

Reference Gauge: 3061000  WEST FORK RIVER AT ENTERPRISE, WV
Drainage Area (sq. mi.): 759.00
Gauge Threshold (cfs): 234


<table>
<thead>
<tr>
<th>Month</th>
<th>Median monthly flow (+ pump)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1,630.82</td>
</tr>
<tr>
<td>2</td>
<td>1,836.14</td>
</tr>
<tr>
<td>3</td>
<td>2,365.03</td>
</tr>
<tr>
<td>4</td>
<td>1,352.59</td>
</tr>
<tr>
<td>5</td>
<td>1,388.37</td>
</tr>
<tr>
<td>6</td>
<td>695.67</td>
</tr>
<tr>
<td>7</td>
<td>450.73</td>
</tr>
<tr>
<td>8</td>
<td>430.37</td>
</tr>
<tr>
<td>9</td>
<td>299.45</td>
</tr>
<tr>
<td>10</td>
<td>293.59</td>
</tr>
<tr>
<td>11</td>
<td>736.74</td>
</tr>
<tr>
<td>12</td>
<td>1,257.84</td>
</tr>
</tbody>
</table>

Water Availability Profile

"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 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): -

11/01/2013  10/25/2013 3:44:15 PM

west virginia department of environmental protection
Source Detail

Source ID: 27258  
Source Name: West Fork River @ McDonald Withdrawal  
David Shrievess

HUC-8 Code: 5020002  
Drainage Area (sq. mi.): 314.91  
County: Harrison

☐ Endangered Species?  
☐ Trout Stream?  
☒ Regulated Stream?  
☐ Proximate PSD?  
☒ Gauged Stream?

Source Latitude: 39.16761  
Source Longitude: -80.45069

Anticipated withdrawal start date: 11/10/2014  
Anticipated withdrawal end date: 11/10/2015  
Total Volume from Source (gal): 8,490,000

Max. Pump rate (gpm): 3,000

Max. Simultaneous Trucks: 0  
Max. Truck pump rate (gpm): 0

Reference Gaug  
3061000  
WEST FORK RIVER AT ENTERPRISE, WV

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

Water Availability Profile

"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.

Flow on this stream is regulated by the Army Corps of Engineers. Please adhere to the stated thresholds to maintain the minimum guaranteed flow requirements.

11/01/2013

West Virginia Department of Environmental Protection

10/25/2013 3:44:15 PM
### Source Detail

**WMP:** 01528  
**API/ID Number:** 047-017-06379  
**Operator:** Antero Resources  
**Richard Unit 1H**

**Source ID:** 27259  
**Source Name:** West Fork River @ GAL Withdrawal  
**David Shriever**

**HUC-8 Code:** 5020002  
**Drainage Area (sq. mi.):** 313.67  
**County:** Harrison  
**Source Latitude:** 39.16422  
**Source Longitude:** -80.45173

- [ ] Endangered Species?
- [ ] Mussel Stream?
- [ ] Trout Stream?
- [ ] Tier 3?
- [ ] Regulated Stream?
- [ ] Stonewall Jackson Dam
- [ ] Gauged Stream?

**Anticipated withdrawal start date:** 11/10/2014  
**Anticipated withdrawal end date:** 11/10/2015  
**Total Volume from Source (gal):** 8,490,000

- [ ] Max. Pump rate (gpm): 2,000  
- [ ] Max. Simultaneous Trucks: 0  
- [ ] Max. Truck pump rate (gpm): 0

---

### Reference Gaug

**Gauge:** 30G1000  
**Location:** WEST FORK RIVER AT ENTERPRISE, WV  
**Drainage Area (sq. mi.):** 759.00  
**Gauge Threshold (ft):** 234

### Monthly Median Flow and Available Water

<table>
<thead>
<tr>
<th>Month</th>
<th>Median Monthly Flow (cfs)</th>
<th>Threshold (+ pump)</th>
<th>Estimated Available Water (cfs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>951.18</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>1,082.19</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3</td>
<td>1,393.91</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4</td>
<td>797.19</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>5</td>
<td>881.28</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6</td>
<td>410.02</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>7</td>
<td>256.55</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>253.65</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td>176.49</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>173.04</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>11</td>
<td>434.22</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>12</td>
<td>741.35</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

---

### Water Availability Profile

"Flow on this stream is regulated by the Army Corps of Engineers. Please adhere to the stated thresholds to maintain the minimum guaranteed flow requirements."

---

### 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

Source ID: 27260  Source Name: Middle Island Creek @ Mees Withdrawal Site
Sarah E. Mees

HUC-8 Code: 5030201
Drainage Area (sq. mi.): 484.78  County: Pleasants

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

Source Latitude: 39.43113  Source Longitude: -81.079567

Anticipated withdrawal start date: 11/10/2014
Anticipated withdrawal end date: 11/10/2015
Total Volume from Source (gal): 8,490,000
Max. Pump rate (gpm): 3,360
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

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

Water Availability Profile

"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 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
**Source Detail**

- **WMP**: 01528
- **API/ID Number**: 047-017-06379
- **Operator**: Antero Resources
- **Source ID**: 27261
- **Source Name**: Middle Island Creek @ Dawson Withdrawal
  - Gary D. and Rella A. Dawson
- **HUC-8 Code**: 5030201
- **Drainage Area (sq. mi.)**: 181.34
- **County**: Tyler
- **Source Latitude**: 39.379292
- **Source Longitude**: -80.867803
- **Anticipated withdrawal start date**: 11/10/2014
- **Anticipated withdrawal end date**: 11/10/2015
- **Total Volume from Source (gal)**: 8,490,000
- **Max. Pump rate (gpm)**: 3,000
  - Max. Simultaneous Trucks: 0
  - Max. Truck pump rate (gpm): 0

**Reference Gaug**

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

### Monthly Median Monthly Flow & Threshold

<table>
<thead>
<tr>
<th>Month</th>
<th>Median Monthly Flow (cfs)</th>
<th>Threshold (+ pump)</th>
<th>Estimated Available Water (cfs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>194.47</td>
<td>42.06</td>
<td>152.68</td>
</tr>
<tr>
<td>2</td>
<td>244.62</td>
<td>42.06</td>
<td>202.83</td>
</tr>
<tr>
<td>3</td>
<td>273.72</td>
<td>42.06</td>
<td>231.93</td>
</tr>
<tr>
<td>4</td>
<td>203.26</td>
<td>42.06</td>
<td>161.47</td>
</tr>
<tr>
<td>5</td>
<td>107.22</td>
<td>42.06</td>
<td>65.43</td>
</tr>
<tr>
<td>6</td>
<td>37.44</td>
<td>42.06</td>
<td>-4.35</td>
</tr>
<tr>
<td>7</td>
<td>21.19</td>
<td>42.06</td>
<td>-20.60</td>
</tr>
<tr>
<td>8</td>
<td>17.45</td>
<td>42.06</td>
<td>-24.34</td>
</tr>
<tr>
<td>9</td>
<td>8.94</td>
<td>42.06</td>
<td>-32.85</td>
</tr>
<tr>
<td>10</td>
<td>11.23</td>
<td>42.06</td>
<td>-30.56</td>
</tr>
<tr>
<td>11</td>
<td>54.82</td>
<td>42.06</td>
<td>13.04</td>
</tr>
<tr>
<td>12</td>
<td>133.96</td>
<td>42.06</td>
<td>92.17</td>
</tr>
</tbody>
</table>

**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
- **Pass by 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

Source ID: 27262  Source Name: McElroy Creek @ Forest Withdrawal
Forest C. & Brenda L. Moore

HUC-8 Code: 5030201  Drainage Area (sq. mi.): 88.85  County: Tyler

- Endangered Species?
- Trout Stream?
- Regulated Stream?
- Proximate PSD?
- Gauged Stream?

Source Latitude: 39.39675  Source Longitude: -80.738197
Anticipated withdrawal start date: 11/10/2014
Anticipated withdrawal end date: 11/10/2015
Total Volume from Source (gal): 8,490,000
Max. Pump rate (gpm): 1,000
Max. Simultaneous Trucks: 0
Max. Truck pump rate (gpm): 0

Reference Gaug
Drainage Area (sq. mi.) 458.00
Gauge Threshold (cfs): 45

<table>
<thead>
<tr>
<th>Month</th>
<th>Median monthly flow (+ pump)</th>
<th>Threshold Available water (cfs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>95.28</td>
<td>19.78</td>
</tr>
<tr>
<td>2</td>
<td>119.86</td>
<td>19.78</td>
</tr>
<tr>
<td>3</td>
<td>134.11</td>
<td>19.78</td>
</tr>
<tr>
<td>4</td>
<td>99.59</td>
<td>19.78</td>
</tr>
<tr>
<td>5</td>
<td>52.54</td>
<td>19.78</td>
</tr>
<tr>
<td>6</td>
<td>18.35</td>
<td>19.78</td>
</tr>
<tr>
<td>7</td>
<td>10.38</td>
<td>19.78</td>
</tr>
<tr>
<td>8</td>
<td>8.55</td>
<td>19.78</td>
</tr>
<tr>
<td>9</td>
<td>4.38</td>
<td>19.78</td>
</tr>
<tr>
<td>10</td>
<td>5.50</td>
<td>19.78</td>
</tr>
<tr>
<td>11</td>
<td>26.86</td>
<td>19.78</td>
</tr>
<tr>
<td>12</td>
<td>65.63</td>
<td>19.78</td>
</tr>
</tbody>
</table>

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

Source ID: 27263  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  County: Doddridge

Drainage Area (sq. mi.): 60.6

Endangered Species? Yes  Mussel Stream? Yes
Trout Stream? No  Tier 3? No
Regulated Stream? No  Proximate PSD? No
Gauged Stream? No

Anticipated withdrawal start date: 11/10/2014
Anticipated withdrawal end date: 11/10/2015
Total Volume from Source (gal): 8,490,000
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
Gauge Threshold (cfs): 45

Drainage Area (sq. mi.) 458.00

Month Median monthly flow (+ 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 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.

10/25/2013 3:44:16 PM
west virginia department of environmental protection

11/01/2013
Source Detail

Source ID: 27264  Source Name: Meathouse Fork @ Whitehair Withdrawal
HUC-8 Code: 5030201
Drainage Area (sq. mi.): 30.37  County: Doddridge
Endangered Species?: Yes  Mussel Stream?: Yes
Trout Stream?: No  Regulated Stream?: No
Proximate PSD?: No  Gauged Stream?: No

Source Latitude: 39.211317
Source Longitude: -80.679592
Anticipated withdrawal start date: 11/10/2014
Anticipated withdrawal end date: 11/10/2015
Total Volume from Source (gal): 8,490,000
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

Water Availability Profile

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

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.

11/01/2013
Source Detail

WMP: 01528
API/ID Number: 047-017-06379
Operator: Antero Resources

Richard Unit 1H

Source ID: 27265 Source Name: Tom's Fork @ Erwin Withdrawal
John F. Erwin and Sandra E. Erwin

HUC-8 Code: 5030201 Drainage Area (sq. mi.): 4.01 County: Doddridge


Mussel Stream? Tier 3?

Source Latitude: 39.174306 Source Longitude: -80.702992

Anticipated withdrawal start date: 11/10/2014 Anticipated withdrawal end date: 11/10/2015
Total Volume from Source (gal): 8,490,000
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

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

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.

11/01/2013
west virginia department of environmental protection
10/25/2013 3:44:16 PM
Source Detail

WMP: 01528  API/ID Number: 047-017-06379  Operator: Antero Resources

Richard Unit 1H

Source ID: 27266  Source Name: Arnold Creek @ Davis Withdrawal
Jonathon Davis

HUC-8 Code: 5030201  County: Doddridge

Drainage Area (sq. mi.): 20.83  Anticipated withdrawal start date: 11/10/2014
Anticipated withdrawal end date: 11/10/2015

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

Total Volume from Source (gal): 8,490,000
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

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

Water Availability Profile

"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 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

west virginia department of environmental protection

10/25/2013 3:44:16 PM
Source ID: 27267  Source Name: Buckeye Creek @ Powell Withdrawal
Dennis Powell

HUC-8 Code: 5030201
Drainage Area (sq. mi.): 31.15  County: Doddridge

Anticipated withdrawal start date: 11/10/2014
Anticipated withdrawal end date: 11/10/2015
Total Volume from Source (gal): 8,490,000
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

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

Water Availability Profile

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**: 01528
- **API/ID Number**: 047-017-06379
- **Operator**: Antero Resources
- **Source ID**: 27268
- **Source Name**: South Fork of Hughes River @ Knight Withdrawal
- **Tracy C. Knight & Stephanie C. Knight**
- **HUC-8 Code**: 5030203
- **Drainage Area (sq. mi.)**: 16.26
- **County**: Ritchie
- **Source Latitude**: 39.198369
- **Source Longitude**: -80.870969

- **Endangered Species?**
- **Mussel Stream?**
- **Trout Stream?**
- **Regulated Stream?**
- **Proximate PSD?**
- **Gauged Stream?**

- **Anticipated withdrawal start date**: 11/10/2014
- **Anticipated withdrawal end date**: 11/10/2015
- **Total Volume from Source (gal)**: 8,490,000
- **Max. Pump rate (gpm)**: 3,000
- **Max. Simultaneous Trucks**: 0
- **Max. Truck pump rate (gpm)**: 0

**Reference Gaug**

- **Reference Gaug**: 3155220
- **SOUTH FORK HUGHES RIVER BELOW MACFARLAN, WV**
- **Drainage Area (sq. mi.)**: 229.00
- **Gauge Threshold (cfs)**: 22

**Median monthly flow (cfs)**

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

### Water Availability Profile

"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 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
Source Detail

WMP: 01528  API/ID Number: 047-017-06379  Operator: Antero Resources

Richard Unit 1H

Source ID: 27269  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: 11/10/2014  Anticipated withdrawal end date: 11/10/2015

Total Volume from Source (gal): 8,490,000

Max. Pump rate (gpm): 1,000

Max. Simultaneous Trucks: 0  Max. Truck pump rate (gpm): 0

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

Drainage Area (sq. mi.) 229.00  Gauge Threshold (cfs): 22

<table>
<thead>
<tr>
<th>Month</th>
<th>Median monthly flow (+ pump) cfs</th>
<th>Median monthly flow (+ pump) cfs</th>
<th>Estimated available water (cfs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>42.64</td>
<td>4.42</td>
<td>38.36</td>
</tr>
<tr>
<td>2</td>
<td>55.59</td>
<td>4.42</td>
<td>51.32</td>
</tr>
<tr>
<td>3</td>
<td>60.88</td>
<td>4.42</td>
<td>56.60</td>
</tr>
<tr>
<td>4</td>
<td>34.42</td>
<td>4.42</td>
<td>30.14</td>
</tr>
<tr>
<td>5</td>
<td>24.15</td>
<td>4.42</td>
<td>19.87</td>
</tr>
<tr>
<td>6</td>
<td>12.98</td>
<td>4.42</td>
<td>8.70</td>
</tr>
<tr>
<td>7</td>
<td>6.44</td>
<td>4.42</td>
<td>2.16</td>
</tr>
<tr>
<td>8</td>
<td>3.72</td>
<td>4.42</td>
<td><strong>-0.56</strong></td>
</tr>
<tr>
<td>9</td>
<td>4.47</td>
<td>4.42</td>
<td>0.19</td>
</tr>
<tr>
<td>10</td>
<td>4.85</td>
<td>4.42</td>
<td>0.57</td>
</tr>
<tr>
<td>11</td>
<td>14.50</td>
<td>4.42</td>
<td>10.23</td>
</tr>
<tr>
<td>12</td>
<td>29.93</td>
<td>4.42</td>
<td>25.65</td>
</tr>
</tbody>
</table>

**Water Availability Profile**

*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 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

west virginia department of environmental protection

10/25/2013 3:44:17 PM
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

<table>
<thead>
<tr>
<th>Source ID</th>
<th>Source Name</th>
<th>Source start date</th>
<th>Source end date</th>
</tr>
</thead>
<tbody>
<tr>
<td>27274</td>
<td>City of Salem Reservoir (Lower Dog Run) Public Water Provider</td>
<td>11/10/2014</td>
<td>11/10/2015</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source Lat</th>
<th>Source Long</th>
<th>Max. Daily Purchase (gal)</th>
<th>Total Volume from Source (gal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>39.28834</td>
<td>-80.54966</td>
<td>1,000,000</td>
<td>8,490,000</td>
</tr>
</tbody>
</table>

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:** 27275  **Source Name:** Pennsboro Lake

<table>
<thead>
<tr>
<th>Source Lat:</th>
<th>39.281689</th>
<th>Source Long:</th>
<th>-80.925526</th>
<th>County</th>
<th>Ritchie</th>
<th>Total Volume from Source (gal): 8,490,000</th>
</tr>
</thead>
</table>

**Source ID:** 27276  **Source Name:** Powers Lake (Wilderness Water Park Dam)

<table>
<thead>
<tr>
<th>Source Lat:</th>
<th>39.255752</th>
<th>Source Long:</th>
<th>-80.463262</th>
<th>County</th>
<th>Harrison</th>
<th>Total Volume from Source (gal): 8,490,000</th>
</tr>
</thead>
</table>

**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.

<table>
<thead>
<tr>
<th>Source ID</th>
<th>Source Name</th>
<th>Source start date</th>
<th>Source end date</th>
<th>County</th>
<th>Total Volume from Source (gal)</th>
</tr>
</thead>
<tbody>
<tr>
<td>27277</td>
<td>Powers Lake Two</td>
<td>11/10/2014</td>
<td>11/10/2015</td>
<td>Harrison</td>
<td>8,490,000</td>
</tr>
</tbody>
</table>

Max. Daily Purchase (gal):
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

<table>
<thead>
<tr>
<th>Source ID: 27278</th>
<th>Source Name</th>
<th>Poth Lake (Landowner Pond) Private Owner</th>
<th>Source start date: 11/10/2014</th>
<th>Source end date: 11/10/2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source Lat:</td>
<td>39.221306</td>
<td>Source Long: -80.463028</td>
<td>County</td>
<td>Harrison</td>
</tr>
<tr>
<td>Max. Daily Purchase (gal)</td>
<td></td>
<td></td>
<td>Total Volume from Source (gal): 8,490,000</td>
<td></td>
</tr>
</tbody>
</table>

DEP Comments:

<table>
<thead>
<tr>
<th>Source ID: 27279</th>
<th>Source Name</th>
<th>Williamson Pond (Landowner Pond)</th>
<th>Source start date: 11/10/2014</th>
<th>Source end date: 11/10/2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source Lat:</td>
<td>39.19924</td>
<td>Source Long: -80.886161</td>
<td>County</td>
<td>Ritchie</td>
</tr>
<tr>
<td>Max. Daily Purchase (gal)</td>
<td></td>
<td></td>
<td>Total Volume from Source (gal): 8,490,000</td>
<td></td>
</tr>
</tbody>
</table>

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: 27280  Source Name: Eddy Pond (Landowner Pond)  Source start date: 11/10/2014
Source Lat: 39.19924  Source Long: -80.886161  Source end date: 11/10/2015
Max. Daily Purchase (gal):  Total Volume from Source (gal): 8,490,000

DEP Comments:
```

```
Source ID: 27281  Source Name: Hog Lick Quarry, Industrial Facility  Source start date: 11/10/2014
Source Lat: 39.419272  Source Long: -80.217941  Source end date: 11/10/2015
Max. Daily Purchase (gal): 1,000,000  County: Marion  Total Volume from Source (gal): 8,490,000

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.

---

<table>
<thead>
<tr>
<th>Source ID: 27282</th>
<th>Source Name: Glade Fork Mine Industrial Facility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source Lat: 38.965767</td>
<td>Source Long: -80.299313</td>
</tr>
<tr>
<td>Max. Daily Purchase (gal): 1,000,000</td>
<td>Total Volume from Source (gal): 8,490,000</td>
</tr>
</tbody>
</table>

DEP Comments:

---

**Recycled Frac Water**

<table>
<thead>
<tr>
<th>Source ID: 27283</th>
<th>Source Name: Radabaugh Unit 1H</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source Lat:</td>
<td>Source Long:</td>
</tr>
<tr>
<td>Max. Daily Purchase (gal):</td>
<td>Total Volume from Source (gal): 8,490,000</td>
</tr>
</tbody>
</table>

DEP Comments:
Antero Resources Corp

APPALACHIAN BASIN

Richard Unit 1H
Doddridge County

REMARKS
QUADRANGLE: BIG ISAAC
WATERSHED: STANDINGS RUN OF MEATHOUSE FORK
DISTRICT: GREENBRIER

By: ECM

11/01/2013