



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

January 24, 2014

WELL WORK PERMIT

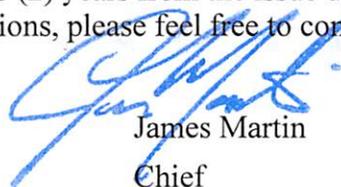
Horizontal 6A Well

This permit, API Well Number: 47-1706415, 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: HUDKINS UNIT 1H
Farm Name: MCCLOY, ALVADORE JR., ET U.
API Well Number: 47-1706415
Permit Type: Horizontal 6A Well
Date Issued: 01/24/2014

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 moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
7. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
8. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

11/07

017 06415

API# 47-017-06415 PERMIT UPDATE

WW-6B
(9/13)

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

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

2) Operator's Well Number: Hudkins Unit 1H Well Pad Name: Alvadore Pad

3) Farm Name/Surface Owner: Alvadore Jr. & Frances J. McCloy Public Road Access: CR 50/31

4) Elevation, current ground: ~1080' Elevation, proposed post-construction: 1055'

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

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Associated Pressure(s):
Marcellus Shale: 6800' TVD, Anticipated Thickness- 60 feet, Associated Pressure- 3100#

*DCW
1-9-2014
MAG*

8) Proposed Total Vertical Depth: 6800' TVD

9) Formation at Total Vertical Depth: Marcellus Shale

10) Proposed Total Measured Depth: 15,200' MD

11) Proposed Horizontal Leg Length: 7177'

12) Approximate Fresh Water Strata Depths: 164', 245'

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

14) Approximate Saltwater Depths: 614', 1185', 1499'

15) Approximate Coal Seam Depths: 1394', 3464'

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

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

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

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WW-6B
(9/13)

18)

CASING AND TUBING PROGRAM

<u>TYPE</u>	<u>Size</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft. (lb/ft)</u>	<u>FOOTAGE: For Drilling</u>	<u>INTERVALS: Left in Well</u>	<u>CEMENT: Fill-up (Cu. Ft.)</u>
Conductor	20"	New	H-40	94#	40'	40'	CTS, 38 Cu. Ft.
Fresh Water	13-3/8"	New	J-55/H-40	54.5#/ 48#	350'	350'	CTS, 486 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	2450'	2450'	CTS, 998 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	20#	15200'	15200'	3788 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#		7100'	
Liners							

*DCW
1-9-2014
MDG*

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

PACKERS

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

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WW-6B
(9/13)

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

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

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

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

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 33.17 acres (shared with Dotson Holland pad)

22) Area to be disturbed for well pad only, less access road (acres): 4.35 acres

23) Describe centralizer placement for each casing string:

Conductor: no centralizers

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

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

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

*DCW,
6-9-2014
MAG*

24) 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

25) Proposed borehole conditioning procedures:

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

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

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

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

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*Note: Attach additional sheets as needed.

Form WW-9 Additives Attachment**SURFACE INTERVAL**

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

INTERMEDIATE INTERVAL***STIFF FOAM RECIPE:***

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

PRODUCTION INTERVAL

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

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

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API# 47-017-06415 PERMIT UPDATE

WW-9 (9/13)

API Number 47 - 017 - 06415 Operator's Well No. Hudkins Unit 1H

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Antero Resources Corporation OP Code 494488557

Watershed (HUC 10) Dotson Run Quadrangle Pennsboro 7.5'

Elevation 1055' County Doddridge District Central

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

Will a pit be used? Yes [] No [checked] No pit will be used at this site (Drilling and Flowback Fluids will be stored in tanks. Cuttings will be tanked and hauled off site.)

If so, please describe anticipated pit waste:

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

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
Underground Injection (UIC Permit Number
Reuse (at API Number Future permitted well locations when applicable. API# will be provided on Form WR-34
Off Site Disposal (Supply form WW-9 for disposal location) (Meadowfill Landfill Permit #SWF-1032-98)
Other (Explain

DCW 1-9-2014 MAG

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

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

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

Additives to be used in drilling medium? Please See Attachment

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

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

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

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature [Signature]

Company Official (Typed Name) Cole Kilstrom

Company Official Title Environmental Specialist

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Subscribed and sworn before me this 17 day of Dec, 2013

[Signature]

Notary Public

My commission expires 11/9/2016

WV Department of Environmental Protection

Form WW-9

Operator's Well No. Hudkins Unit 1H

Antero Resources Corporation

Proposed Revegetation Treatment: Acres Disturbed 4.35 (*see note below) Prevegetation pH _____

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

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

Fertilizer amount 500 lbs/acre

Mulch 2-3 Tons/acre

*Please note that this location is sharing the Access Roads (15.54), Staging Area "A" (2.31), Water Containment Pad (2.42), and New Topsoil/Excess Materials Stockpiles (4.35) with the Dotson Holland pad site. Reference "Site Plan/Construction Staging Note" on page 1 of the Alvadore design. The Alvadore pad will consist of 4.35 total acres of disturbance which is referenced as "Staging Area B" on the Dotson Holland pad design.

Seed Mixtures

Temporary

Permanent

Seed Type lbs/acre
Annual Rye Grass 10

Seed Type lbs/acre
Crownvetch 10-15

*See attached Table 3 for additional seed type (Alvadore Pad Design Page 18)

*See attached Table 4a for additional seed type (Alvadore Pad Design Page 18)

*or type of grass seed requested by surface owner

*or type of grass seed requested by surface owner

NOTE: No Fescue or Timothy Grass shall be used.

Attach:

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Douglas Newlon Michael Hoff

Comments: Proceed + mulch install ETS to
WV Dep regulations

Call inspector before construction begins
and conductors drilled

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Title: Oil & Gas Inspector

Date: 1-9-2014

Field Reviewed? Yes No



Well Site Safety Plan

Antero Resources

Well Name: Hudkins Unit 1H, Hudkins Unit 2H, Leason Run Unit 1H, Leason Run Unit 2H

Pad Location: ALVADORE PAD
Doddridge County/ Central District

GPS Coordinates: Lat 39°16'24.49"/Long -80°52'57.53" (NAD83)

Driving Directions:

From West Union, WV:

From the intersection of Main St. and WV-18 S in West Union, WV head south on WV-18S and follow for ~0.5 mi. Turn right on US-50 W and follow for ~6.9 miles. Turn left on Sunnyside Road (Co Route 50/3) and follow for ~ 0.2 miles. Take first left onto Co Route 50/31. Access road will be on your right.

DCR
1-9-2014
MSG

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Water Management Plan: Primary Water Sources



WMP-01675

API/ID Number: 047-017-06415

Operator:

Antero Resources

Hudkins 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 DEC 16 2013

Source Summary

017 06415

WMP-01675

API Number:

047-017-06415

Operator:

Antero Resources

Hudkins 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:
5/19/2015 5/19/2016 6,520,000 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:
5/19/2015 5/19/2016 6,520,000 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:
5/19/2015 5/19/2016 6,520,000 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:

017**06415**● 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:
5/19/2015	5/19/2016	6,520,000		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
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DEP Comments:

● Source **Middle Island Creek @ Mees Withdrawal Site**

Pleasants

Owner:

Sarah E. Mees

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
5/19/2015	5/19/2016	6,520,000		39.43113	-81.079567

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

Max. Pump rate (gpm):	3,360	Min. Gauge Reading (cfs):	52.59	Min. Passby (cfs)	47.63
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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:
5/19/2015	5/19/2016	6,520,000		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
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DEP Comments:

017**06415**● 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:
5/19/2015	5/19/2016	6,520,000		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
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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:
5/19/2015	5/19/2016	6,520,000		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
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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:
5/19/2015	5/19/2016	6,520,000		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
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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:
5/19/2015	5/19/2016	6,520,000		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:
5/19/2015	5/19/2016	6,520,000		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:
5/19/2015	5/19/2016	6,520,000		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

017
Owner:

06415
Tracy C. Knight &
Stephanie C. Knight

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
5/19/2015	5/19/2016	6,520,000		39.198369	-80.870969

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

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:
5/19/2015	5/19/2016	6,520,000		39.322363	-80.936771

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

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

DEP Comments:

Source Summary

017 06415

WMP-01675

API Number:

047-017-06415

Operator:

Antero Resources

Hudkins 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:
5/19/2015	5/19/2016	6,520,000	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:
5/19/2015	5/19/2016	6,520,000	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:
5/19/2015	5/19/2016	6,520,000		-	-

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:

017

06415
Sun Valley PSD

Start Date	End Date	Total Volume (gal)	Max. daily purchase (gal)	Intake Latitude:	Intake Longitude:
5/19/2015	5/19/2016	6,520,000	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

017 06415

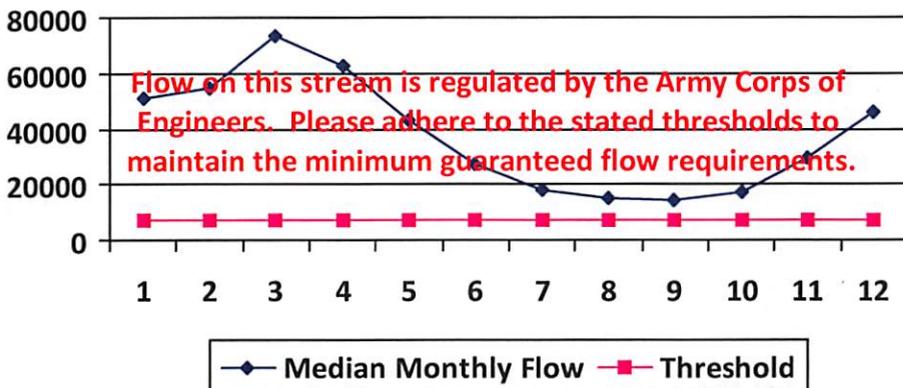
WMP-01675 API/ID Number: 047-017-06415 Operator: Antero Resources
 Hudkins Unit 1H

Source ID: 31091 Source Name: Ohio River @ Select Energy Source Latitude: 39.346473
 Select Energy Source Longitude: -81.338727
 HUC-8 Code: 5030201
 Drainage Area (sq. mi.): 25000 County: Pleasants
 Anticipated withdrawal start date: 5/19/2015
 Anticipated withdrawal end date: 5/19/2016
 Total Volume from Source (gal): 6,520,000
 Max. Pump rate (gpm): 1,680
 Endangered Species? Mussel Stream?
 Trout Stream? Tier 3?
 Regulated Stream? Ohio River Min. Flow
 Proximate PSD?
 Gauged Stream?
 Max. Simultaneous Trucks:
 Max. Truck pump rate (gpm):

Reference Gaug: 9999998 Ohio River Station: Racine Dam
 Drainage Area (sq. mi.): 25,000.00 Gauge Threshold (cfs): 7216

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

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs): -
 Upstream Demand (cfs): 0.00
 Downstream Demand (cfs): 0.00
 Pump rate (cfs): 3.74
 Headwater Safety (cfs): 0.00
 Ungauged Stream Safety (cfs): 0.00
 Min. Gauge Reading (cfs): -
 Passby at Location (cfs): -

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

Source Detail

WMP-01675 API/ID Number: 047-017-06415 Operator: Antero Resources
 Hudkins Unit 1H

Source ID: 31092 Source Name: Middle Island Creek @ Solo Construction
 Solo Construction, LLC Source Latitude: 39.399094
 Source Longitude: -81.185548

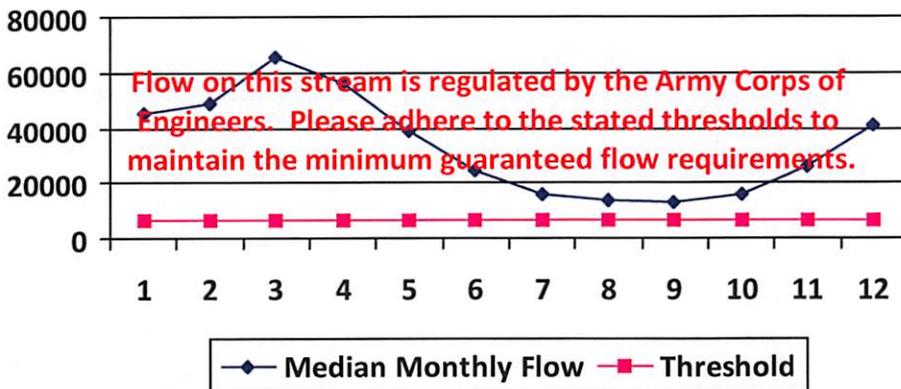
HUC-8 Code: 5030201 Drainage Area (sq. mi.): 25000 County: Pleasants
 Anticipated withdrawal start date: 5/19/2015
 Anticipated withdrawal end date: 5/19/2016

Endangered Species? Mussel Stream?
 Trout Stream? Tier 3?
 Regulated Stream? Ohio River Min. Flow
 Proximate PSD? City of St. Marys
 Gauged Stream?
 Total Volume from Source (gal): 6,520,000
 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

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

017 06415

WMP-01675

API/ID Number: 047-017-06415

Operator: Antero Resources

Hudkins Unit 1H

Source ID: 31093 Source Name: Claywood Park PSD Source Latitude: -
 Claywood Park PSD Source Longitude: -

HUC-8 Code: 5030203

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

Anticipated withdrawal start date: 5/19/2015

Anticipated withdrawal end date: 5/19/2016

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 6,520,000

Trout Stream? Tier 3?

Max. Pump rate (gpm):

Regulated Stream?

Max. Simultaneous Trucks: 0

Proximate PSD? Claywood Park PSD

Max. Truck pump rate (gpm): 0

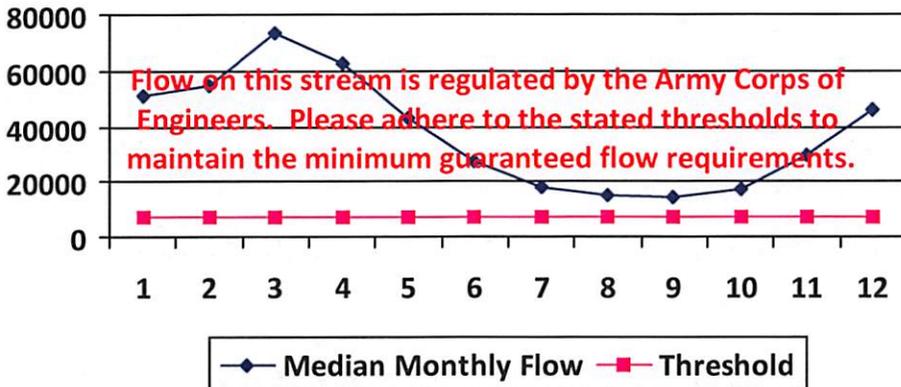
Gauged Stream?

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

017 06415

WMP-01675

API/ID Number: 047-017-06415

Operator: Antero Resources

Hudkins Unit 1H

Source ID: 31094 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: 5/19/2015

Anticipated withdrawal end date: 5/19/2016

Total Volume from Source (gal): 6,520,000

Endangered Species? Mussel Stream?

Trout Stream? Tier 3?

Regulated Stream? Stonewall Jackson Dam

Max. Pump rate (gpm):

Proximate PSD?

Max. Simultaneous Trucks:

Gauged Stream?

Max. Truck pump rate (gpm):

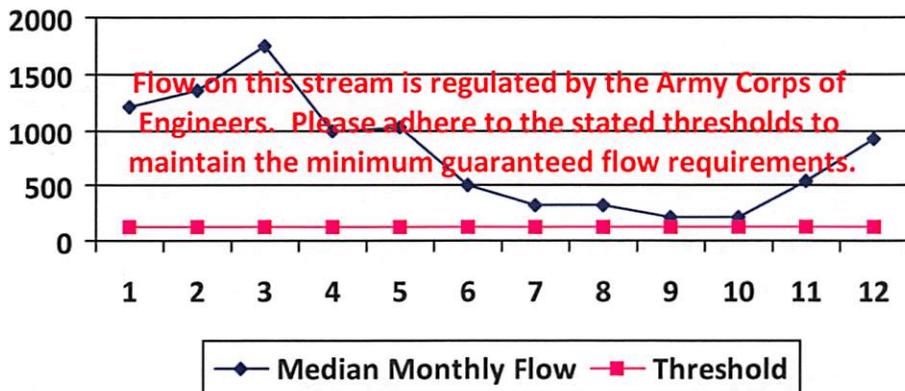
Reference Gaug: 3061000 WEST FORK RIVER AT ENTERPRISE, WV

Drainage Area (sq. mi.): 759.00

Gauge Threshold (cfs): 234

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

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs): -

Upstream Demand (cfs):

Downstream Demand (cfs):

Pump rate (cfs):

Headwater Safety (cfs): 0.00

Ungauged Stream Safety (cfs): 0.00

Min. Gauge Reading (cfs): -

Passby at Location (cfs): -

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

Source Detail

017 06415

WMP-01675

API/ID Number: 047-017-06415

Operator: Antero Resources

Hudkins Unit 1H

Source ID: 31077 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: 5/19/2015

Anticipated withdrawal end date: 5/19/2016

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 6,520,000

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?

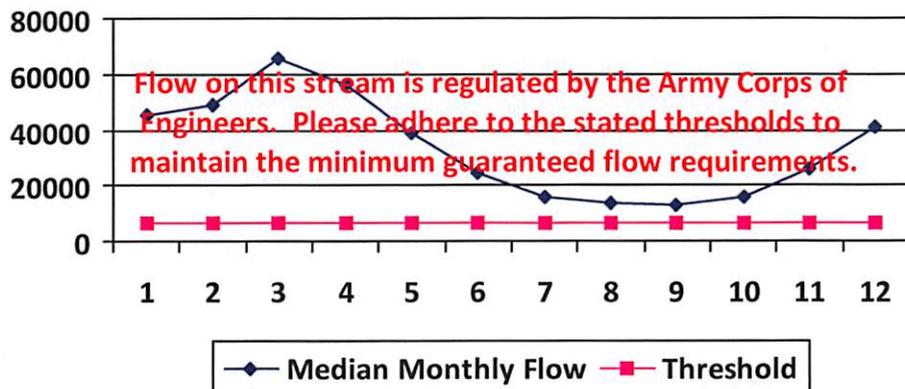
Reference Gaug: 9999999 Ohio River Station: Willow Island Lock & Dam

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

017 06415

WMP-01675

API/ID Number: 047-017-06415

Operator: Antero Resources

Hudkins Unit 1H

Source ID: 31078 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: 5/19/2015

Anticipated withdrawal end date: 5/19/2016

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 6,520,000

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?

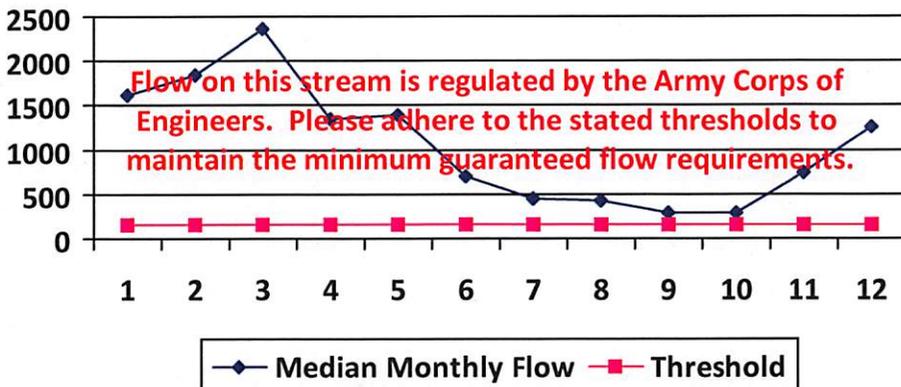
Reference Gaug: 3061000 WEST FORK RIVER AT ENTERPRISE, WV

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-01675 API/ID Number: 047-017-06415 Operator: Antero Resources
 Hudkins Unit 1H

Source ID: 31079 Source Name: West Fork River @ McDonald Withdrawal Source Latitude: 39.16761
 David Shrieves Source Longitude: -80.45069

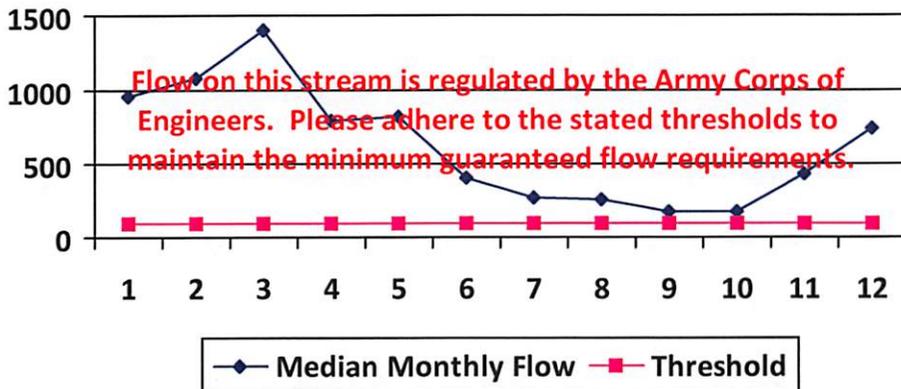
HUC-8 Code: 5020002 Anticipated withdrawal start date: 5/19/2015
 Drainage Area (sq. mi.): 314.91 County: Harrison Anticipated withdrawal end date: 5/19/2016

- Endangered Species? Mussel Stream?
 - Trout Stream? Tier 3?
 - Regulated Stream? Stonewall Jackson Dam
 - Proximate PSD?
 - Gauged Stream?
- Total Volume from Source (gal): 6,520,000
 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

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

017 06415

WMP-01675 API/ID Number: 047-017-06415 Operator: Antero Resources
 Hudkins Unit 1H

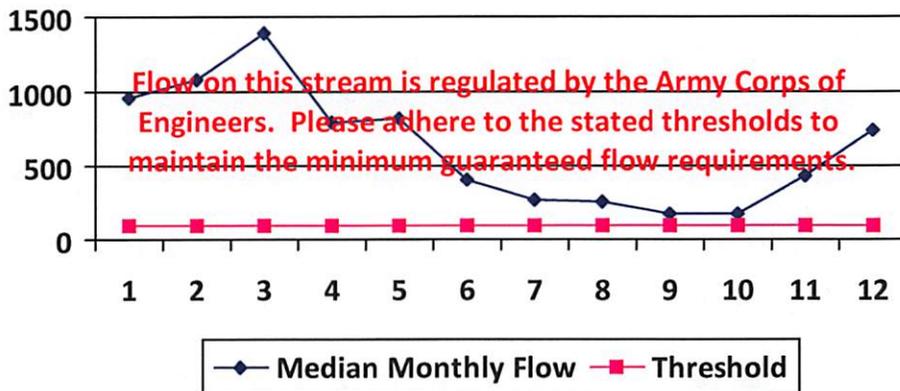
Source ID: 31080 Source Name: West Fork River @ GAL Withdrawal
 David Shrieves Source Latitude: 39.16422
 Source Longitude: -80.45173
 HUC-8 Code: 5020002
 Drainage Area (sq. mi.): 313.67 County: Harrison
 Anticipated withdrawal start date: 5/19/2015
 Anticipated withdrawal end date: 5/19/2016
 Total Volume from Source (gal): 6,520,000
 Max. Pump rate (gpm): 2,000
 Max. Simultaneous Trucks: 0
 Max. Truck pump rate (gpm): 0

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

017 06415

WMP-01675

API/ID Number: 047-017-06415

Operator: Antero Resources

Hudkins Unit 1H

Source ID: 31081 Source Name: Middle Island Creek @ Mees Withdrawal Site
Sarah E. Mees

Source Latitude: 39.43113

Source Longitude: -81.079567

HUC-8 Code: 5030201

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

Anticipated withdrawal start date: 5/19/2015

Anticipated withdrawal end date: 5/19/2016

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 6,520,000

Trout Stream? Tier 3?

Max. Pump rate (gpm): 3,360

Regulated Stream?

Max. Simultaneous Trucks: 0

Proximate PSD?

Max. Truck pump rate (gpm): 0

Gauged Stream?

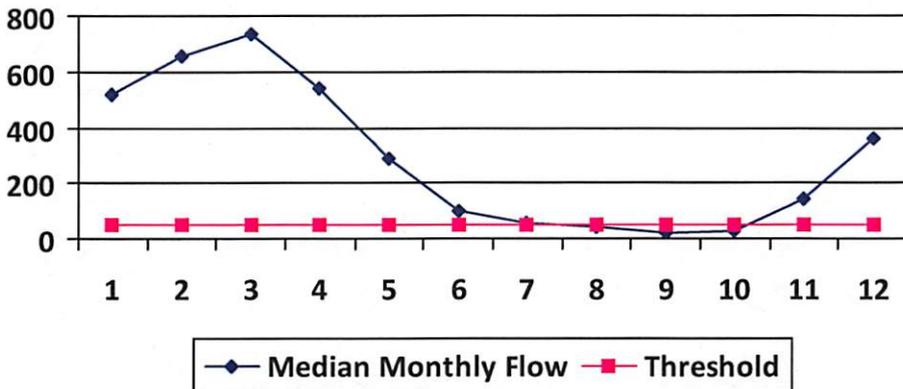
Reference Gaug: 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.): 458.00

Gauge Threshold (cfs): 45

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

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs): 47.63

Upstream Demand (cfs): 0.00

Downstream Demand (cfs): 0.00

Pump rate (cfs): 7.49

Headwater Safety (cfs): 0.00

Ungauged Stream Safety (cfs): 0.00

Min. Gauge Reading (cfs): 52.49

Passby at Location (cfs): 47.63

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

Source Detail

017 06415

WMP- 01675 API/ID Number: 047-017-06415 Operator: Antero Resources
 Hudkins Unit 1H

Source ID: 31082 Source Name: Middle Island Creek @ Dawson Withdrawal
 Gary D. and Rella A. Dawson Source Latitude: 39.379292
 Source Longitude: -80.867803

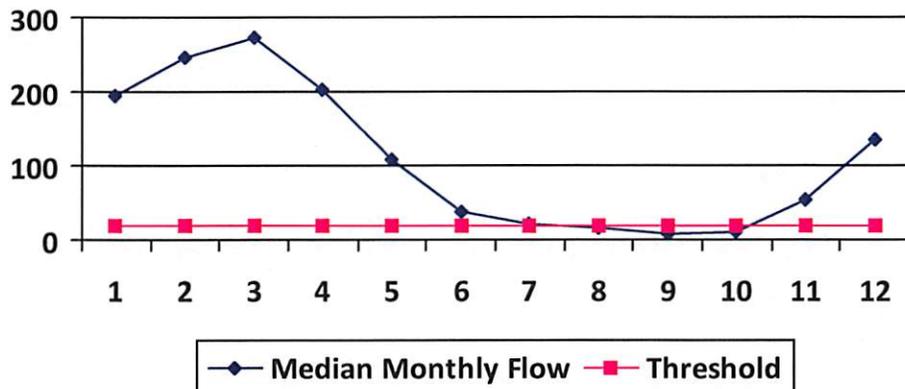
HUC-8 Code: 5030201 Drainage Area (sq. mi.): 181.34 County: Tyler
 Anticipated withdrawal start date: 5/19/2015
 Anticipated withdrawal end date: 5/19/2016

- Endangered Species? Mussel Stream?
 - Trout Stream? Tier 3?
 - Regulated Stream?
 - Proximate PSD?
 - Gauged Stream?
- Total Volume from Source (gal): 6,520,000
 Max. Pump rate (gpm): 3,000
 Max. Simultaneous Trucks: 0
 Max. Truck pump rate (gpm): 0

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

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

017 06415

WMP-01675

API/ID Number: 047-017-06415

Operator: Antero Resources

Hudkins Unit 1H

Source ID: 31083 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: 5/19/2015

Anticipated withdrawal end date: 5/19/2016

Total Volume from Source (gal): 6,520,000

Max. Pump rate (gpm): 1,000

Max. Simultaneous Trucks: 0

Max. Truck pump rate (gpm): 0

Endangered Species? Mussel Stream?

Trout Stream? Tier 3?

Regulated Stream?

Proximate PSD?

Gauged Stream?

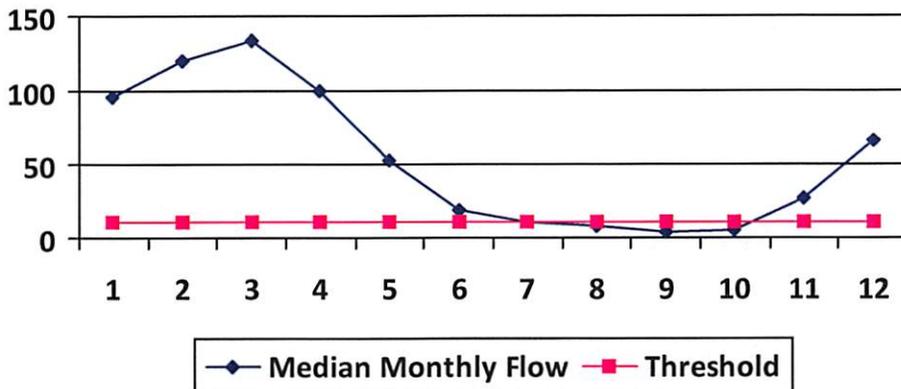
Reference Gaug: 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.): 458.00

Gauge Threshold (cfs): 45

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

Water Availability Profile



Water Availability Assessment of Location

Base Threshold (cfs): 8.73

Upstream Demand (cfs): 4.46

Downstream Demand (cfs): 0.00

Pump rate (cfs): 2.23

Headwater Safety (cfs): 2.18

Ungauged Stream Safety (cfs): 2.18

Min. Gauge Reading (cfs): 74.19

Passby at Location (cfs): 13.09

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

Source Detail

017 06415

WMP- 01675 API/ID Number: 047-017-06415 Operator: Antero Resources
 Hudkins Unit 1H

Source ID: 31084 Source Name: Meathouse Fork @ Gagnon Withdrawal
 George L. Gagnon and Susan C. Gagnon Source Latitude: 39.26054
 Source Longitude: -80.720998

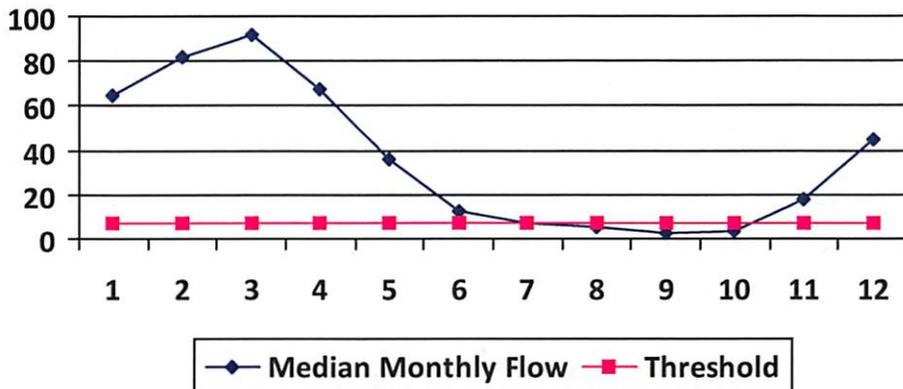
HUC-8 Code: 5030201 Drainage Area (sq. mi.): 60.6 County: Doddridge
 Anticipated withdrawal start date: 5/19/2015
 Anticipated withdrawal end date: 5/19/2016

- Endangered Species? Mussel Stream?
 - Trout Stream? Tier 3?
 - Regulated Stream?
 - Proximate PSD?
 - Gauged Stream?
- Total Volume from Source (gal): 6,520,000
 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

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

017 06415

WMP-01675

API/ID Number: 047-017-06415

Operator: Antero Resources

Hudkins Unit 1H

Source ID: 31085 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: 5/19/2015

Anticipated withdrawal end date: 5/19/2016

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 6,520,000

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?

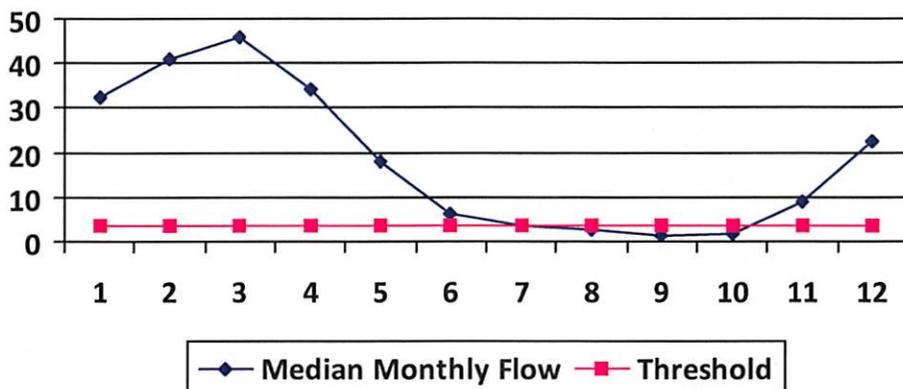
Reference Gaug: 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.): 458.00

Gauge Threshold (cfs): 45

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

017 06415

WMP-01675

API/ID Number: 047-017-06415

Operator: Antero Resources

Hudkins Unit 1H

Source ID: 31086 Source Name: Tom's Fork @ Erwin Withdrawal
John F. Erwin and Sandra E. Erwin Source Latitude: 39.174306
Source Longitude: -80.702992

HUC-8 Code: 5030201

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

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

Anticipated withdrawal start date: 5/19/2015

Anticipated withdrawal end date: 5/19/2016

Total Volume from Source (gal): 6,520,000

Max. Pump rate (gpm): 1,000

Max. Simultaneous Trucks: 0

Max. Truck pump rate (gpm): 0

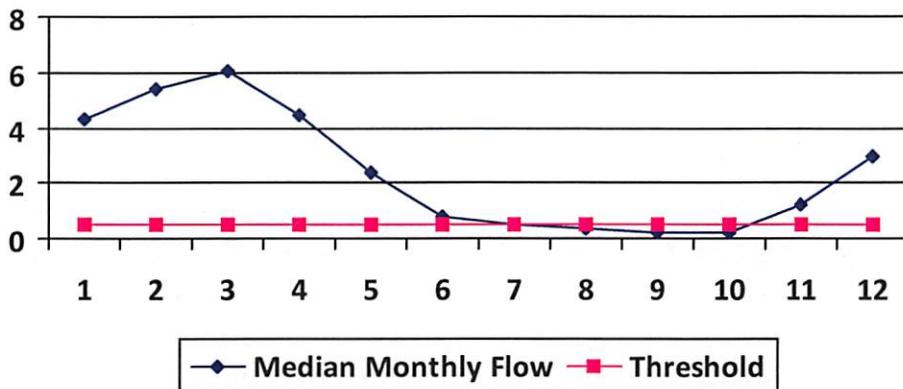
Reference Gaug: 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.): 458.00

Gauge Threshold (cfs): 45

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

017 06415

WMP-01675

API/ID Number: 047-017-06415

Operator: Antero Resources

Hudkins Unit 1H

Source ID: 31087 Source Name: Arnold Creek @ Davis Withdrawal
Jonathon Davis Source Latitude: 39.302006
Source Longitude: -80.824561

HUC-8 Code: 5030201

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

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

Anticipated withdrawal start date: 5/19/2015

Anticipated withdrawal end date: 5/19/2016

Total Volume from Source (gal): 6,520,000

Max. Pump rate (gpm): 1,000

Max. Simultaneous Trucks: 0

Max. Truck pump rate (gpm): 0

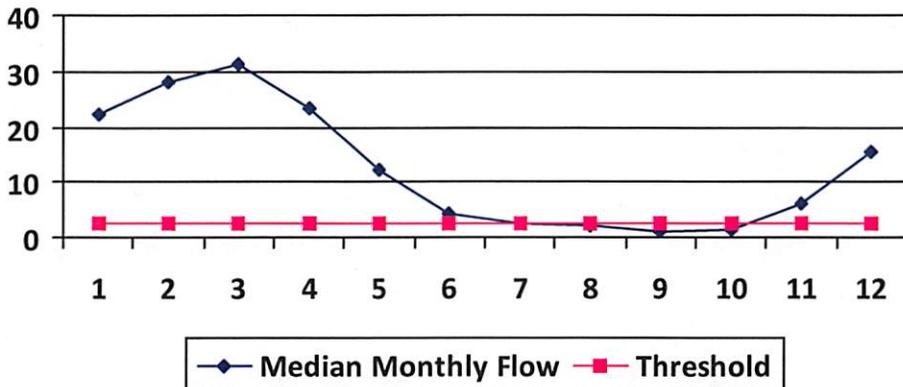
Reference Gaug: 3114500 MIDDLE ISLAND CREEK AT LITTLE, WV

Drainage Area (sq. mi.): 458.00

Gauge Threshold (cfs): 45

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

017 06415

WMP-01675 API/ID Number: 047-017-06415 Operator: Antero Resources
 Hudkins Unit 1H

Source ID: 31088 Source Name: Buckeye Creek @ Powell Withdrawal Source Latitude: 39.277142
 Dennis Powell Source Longitude: -80.690386

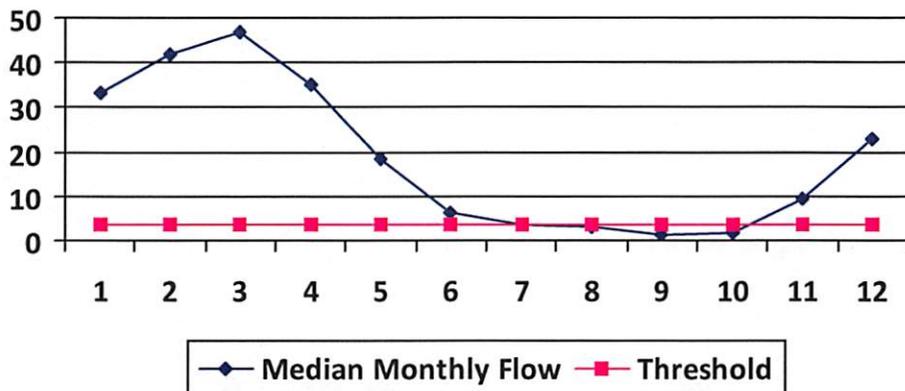
HUC-8 Code: 5030201 Drainage Area (sq. mi.): 31.15 County: Doddridge
 Anticipated withdrawal start date: 5/19/2015
 Anticipated withdrawal end date: 5/19/2016

- Endangered Species? Mussel Stream?
 - Trout Stream? Tier 3?
 - Regulated Stream?
 - Proximate PSD?
 - Gauged Stream?
- Total Volume from Source (gal): 6,520,000
 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

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

017 06415

WMP-01675

API/ID Number: 047-017-06415

Operator: Antero Resources

Hudkins Unit 1H

Source ID: 31089 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: 5/19/2015

Anticipated withdrawal end date: 5/19/2016

Endangered Species? Mussel Stream?

Total Volume from Source (gal): 6,520,000

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?

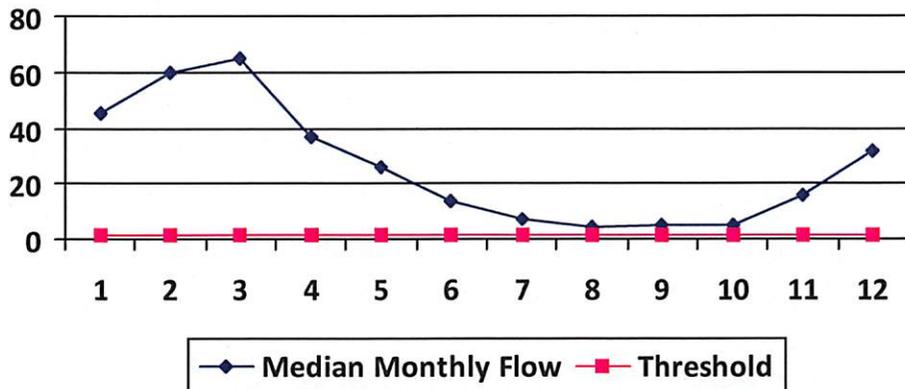
Reference Gaug: 3155220 SOUTH FORK HUGHES RIVER BELOW MACFARLAN, WV

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

017 06415

WMP-01675 API/ID Number: 047-017-06415 Operator: Antero Resources
 Hudkins Unit 1H

Source ID: 31090 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

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

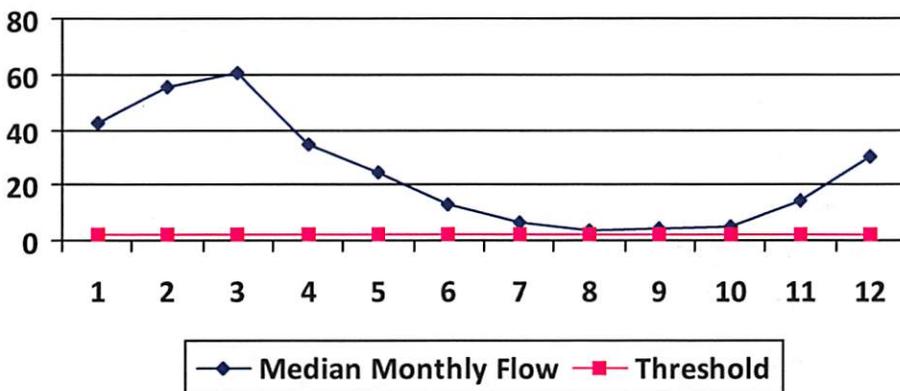
Anticipated withdrawal start date: 5/19/2015
 Anticipated withdrawal end date: 5/19/2016
 Total Volume from Source (gal): 6,520,000
 Max. Pump rate (gpm): 1,000
 Max. Simultaneous Trucks: 0
 Max. Truck pump rate (gpm): 0

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

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

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-01675	API/ID Number	047-017-06415	Operator:	Antero Resources
Hudkins 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:	31095	Source Name	City of Salem Reservoir (Lower Dog Run)	Source start date:	5/19/2015
			Public Water Provider	Source end date:	5/19/2016
Source Lat:	39.28834	Source Long:	-80.54966	County	Harrison
Max. Daily Purchase (gal)	1,000,000	Total Volume from Source (gal):	6,520,000		
DEP Comments:					

WMP-01675

API/ID Number: 047-017-06415

Operator:

Antero Resources

Hudkins 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:	31096	Source Name	Pennsboro Lake		Source start date:	5/19/2015	
					Source end date:	5/19/2016	
		Source Lat:	39.281689	Source Long:	-80.925526	County	Ritchie
		Max. Daily Purchase (gal)		Total Volume from Source (gal):		6,520,000	

DEP Comments:

Source ID:	31097	Source Name	Powers Lake (Wilderness Water Park Dam)		Source start date:	5/19/2015	
					Source end date:	5/19/2016	
		Source Lat:	39.255752	Source Long:	-80.463262	County	Harrison
		Max. Daily Purchase (gal)		Total Volume from Source (gal):		6,520,000	

DEP Comments:

WMP-01675

API/ID Number

047-017-06415

Operator:

Antero Resources

Hudkins 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:	<input type="text" value="31098"/>	Source Name	<input type="text" value="Powers Lake Two"/>		Source start date:	<input type="text" value="5/19/2015"/>
					Source end date:	<input type="text" value="5/19/2016"/>
	Source Lat:	<input type="text" value="39.247604"/>	Source Long:	<input type="text" value="-80.466642"/>	County	<input type="text" value="Harrison"/>
	Max. Daily Purchase (gal)	<input type="text"/>	Total Volume from Source (gal):	<input type="text" value="6,520,000"/>		
DEP Comments:	<input type="text"/>					

WMP-01675

API/ID Number 047-017-06415

Operator: Antero Resources

Hudkins 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: 31099 Source Name Poth Lake (Landowner Pond) Source start date: 5/19/2015
 Private Owner Source end date: 5/19/2016
 Source Lat: 39.221306 Source Long: -80.463028 County Harrison
 Max. Daily Purchase (gal) Total Volume from Source (gal): 6,520,000
 DEP Comments:

Source ID: 31100 Source Name Williamson Pond (Landowner Pond) Source start date: 5/19/2015
 Source end date: 5/19/2016
 Source Lat: 39.19924 Source Long: -80.886161 County Ritchie
 Max. Daily Purchase (gal) Total Volume from Source (gal): 6,520,000
 DEP Comments:

WMP-01675

API/ID Number 047-017-06415

Operator: Antero Resources

Hudkins 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: 31101 Source Name Eddy Pond (Landowner Pond) Source start date: 5/19/2015
 Source end date: 5/19/2016
 Source Lat: 39.19924 Source Long: -80.886161 County Ritchie
 Max. Daily Purchase (gal) Total Volume from Source (gal): 6,520,000
 DEP Comments:

Source ID: 31102 Source Name Hog Lick Quarry Industrial Facility Source start date: 5/19/2015
 Source end date: 5/19/2016
 Source Lat: 39.419272 Source Long: -80.217941 County Marion
 Max. Daily Purchase (gal) 1,000,000 Total Volume from Source (gal): 6,520,000
 DEP Comments:

WMP- 01675

API/ID Number 047-017-06415

Operator: Antero Resources

Hudkins Unit 1H

Important:

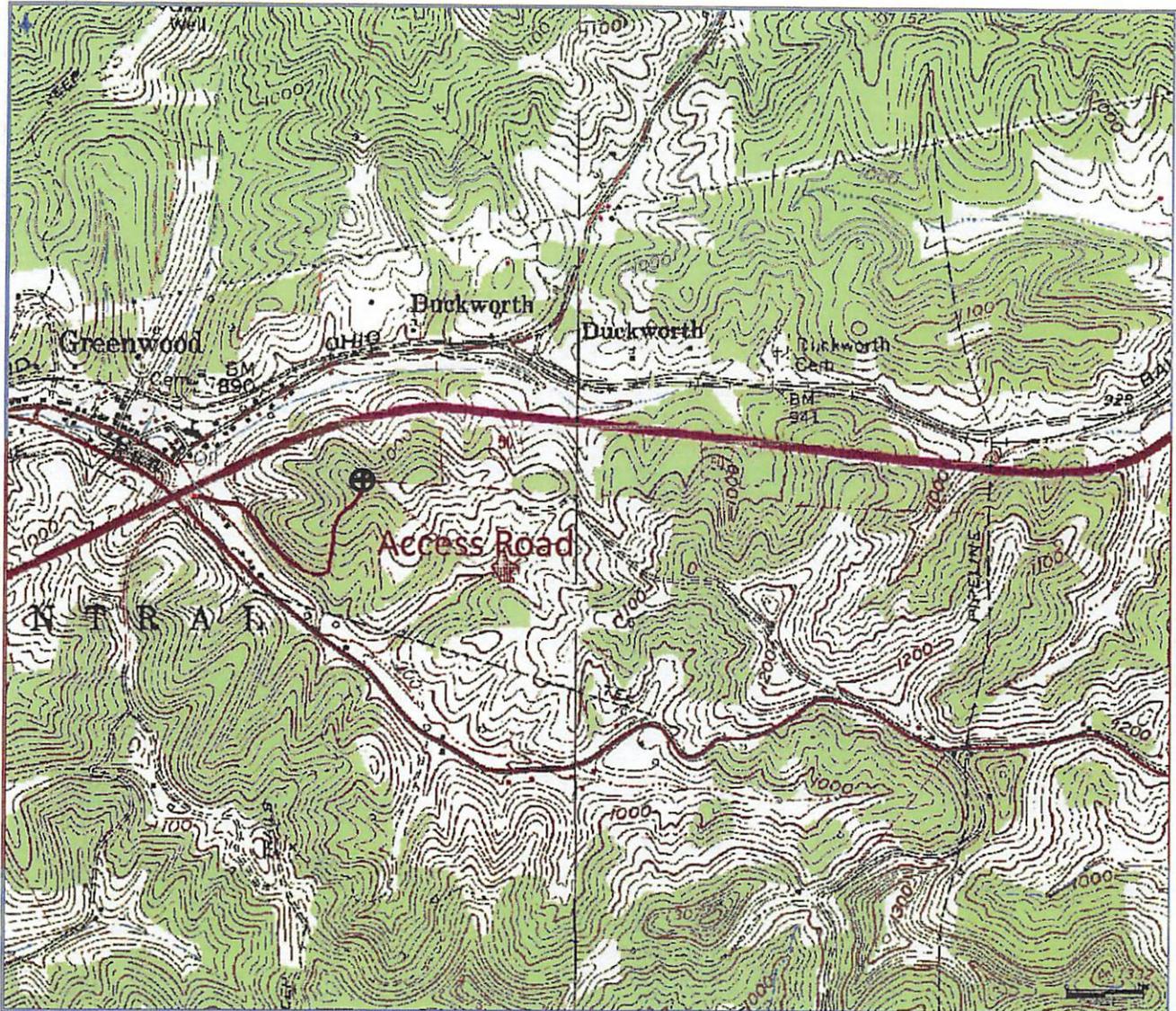
For each proposed secondary water source identified in your water management plan (i.e., groundwater well, lake/reservoir, recycled frac water, multi-site impoundment, out-of-state source), DEP makes no estimation of the availability of water. These sources may prove to be unsuitable water supplies. 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: 31103 Source Name: Glade Fork Mine
 Industrial Facility Source start date: 5/19/2015
 Source end date: 5/19/2016
 Source Lat: 38.965767 Source Long: -80.299313 County: Upshur
 Max. Daily Purchase (gal): 1,000,000 Total Volume from Source (gal): 6,520,000
 DEP Comments:

Recycled Frac Water

Source ID: 31104 Source Name: Various
 Source start date: 5/19/2015
 Source end date: 5/19/2016
 Source Lat: Source Long: County:
 Max. Daily Purchase (gal): Total Volume from Source (gal): 6,520,000
 DEP Comments: Sources include, but are not limited to: Leason Run Unit 2H



Antero Resources Corporation

Appalachian Basin

Hudkins Unit 1H

Doddridge County

Quadrangle: West Union

Watershed: Dotson Run

District: Central

Date: 10-17-2013

RECEIVED
Office of Oil and Gas
JAN 10 2014
WV Department of
Environmental Protection

LATITUDE 39°17'30"

2,202'

10,210' TO BOTTOM HOLE

LATITUDE 39°17'30"

LONGITUDE 80°50'00"

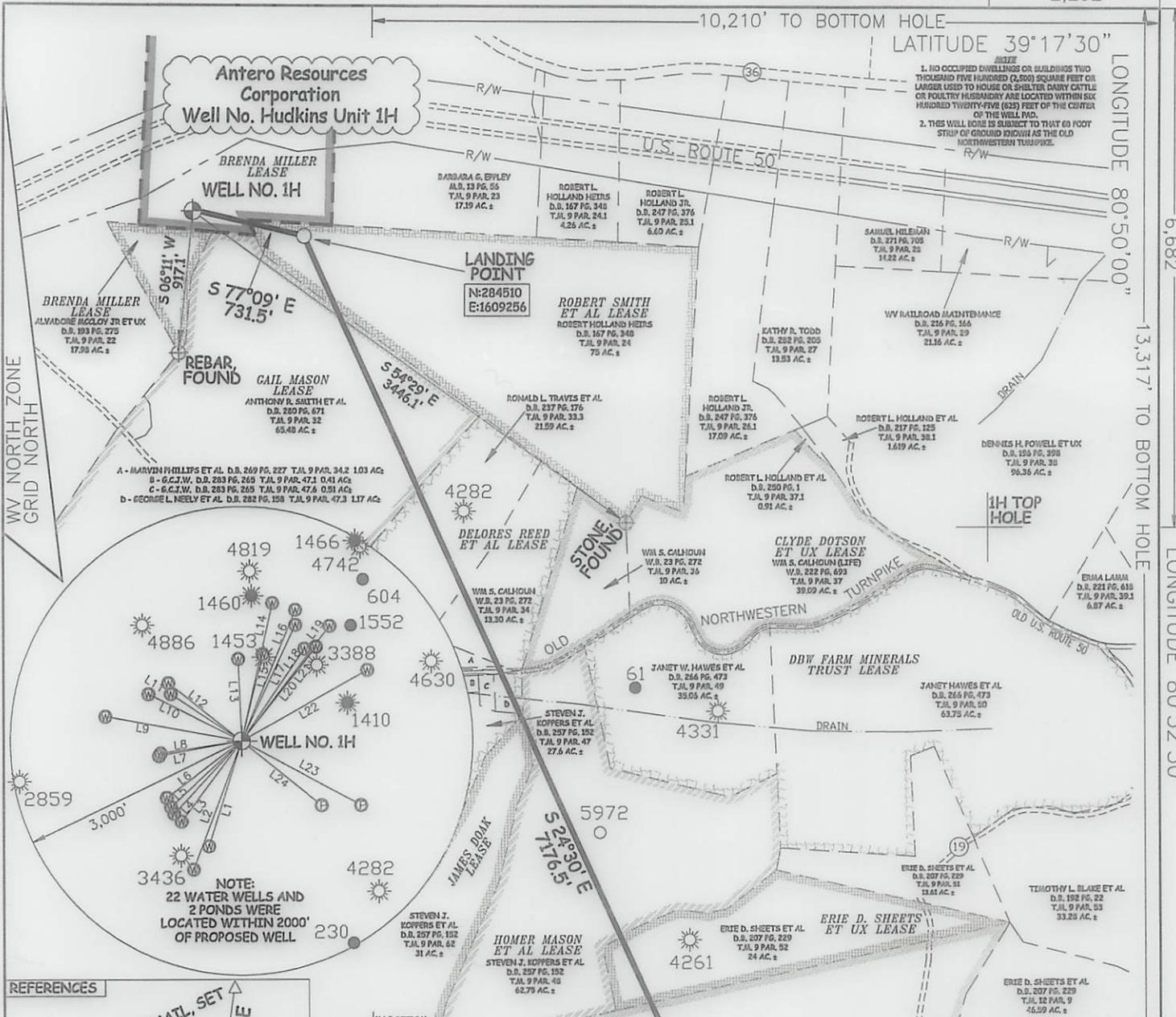
6,682'

13,317' TO BOTTOM HOLE

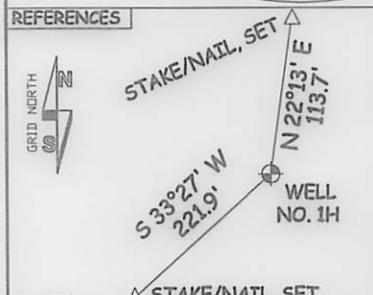
LONGITUDE 80°52'30"

Antero Resources Corporation Well No. Hudkins Unit 1H

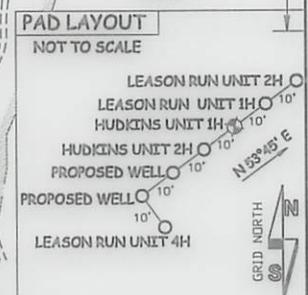
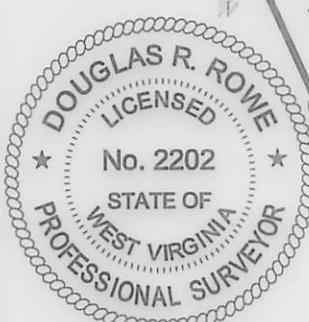
1. NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHEAR DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.
2. THIS WELL PAD IS SUBJECT TO THAT 60 FOOT STRIP OF GROUND KNOWN AS THE OLD NORTHWESTERN TURNPIKE.



NOTE: 22 WATER WELLS AND 2 PONDS WERE LOCATED WITHIN 2000' OF PROPOSED WELL



LINE	BEARING	DISTANCE
L1	S 17°52' W	1415.04'
L2	S 21°05' W	1763.00'
L3	S 37°35' W	1298.22'
L4	S 43°42' W	1284.40'
L5	S 47°44' W	1253.61'
L6	S 53°31' W	1220.25'
L7	S 79°51' W	1098.01'
L8	S 81°12' W	1071.07'
L9	N 80°07' W	1797.94'
L10	N 63°58' W	1351.70'
L11	N 57°20' W	1100.65'
L12	N 52°31' W	1206.59'
L13	N 02°46' W	1043.78'
L14	N 12°31' E	1806.91'
L15	N 13°31' E	1135.82'
L16	N 22°21' E	1811.08'
L17	N 24°57' E	1634.43'
L18	N 34°27' E	1423.87'
L19	N 37°46' E	1856.43'
L20	N 38°31' E	1539.40'
L21	N 39°46' E	1535.36'
L22	N 61°02' E	1854.94'
L23	S 62°08' E	1749.53'
L24	N 51°44' W	1320.37'



NOTES:
 WELL 1H TOP HOLE INFORMATION:
 N: 284,672ft E: 1,608,543ft
 LAT: 39°16'23.96" LON: 80°52'58.00"
 BOTTOM HOLE INFORMATION:
 N: 277,979ft E: 1,612,232ft
 LAT: 39°15'18.37" LON: 80°52'09.79"
 WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY LAW AND THE RULES ISSUED AND PERSCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



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

JOB # 13-089WA
DRAWING # HUDKINS1H
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

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

DOUGLAS R. ROWE P.S. 2202
DATE 10/23/13
OPERATOR'S WELL# HUDKINS UNIT 1H

(NAD) 83 (UTM) ZONE 17 COORDS:
WELL 1H TOP HOLE INFORMATION:
N: 4,347,124m E: 510,126m
BOTTOM HOLE INFORMATION:
N: 4,345,104m E: 511,284m

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS
WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL
(IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X
LOCATION: ELEVATION 1,055' WATERSHED DOTSON RUN

API WELL # 47 - 017 - 06415
STATE COUNTY PERMIT

QUADRANGLE PENNSBORO 7.5' (TOP HOLE) WEST UNION 7.5' (BOTTOM HOLE) DISTRICT CENTRAL COUNTY DODDRIDGE

SURFACE OWNER ALVADORE MCCLOY JR ET UX ACREAGE 17.98 ACRES +/-
OIL & GAS ROYALTY OWNER BRENDA MILLER; ROBERT SMITH ET AL; GAIL MASON; DELORES REED ET AL; LEASE ACREAGE 37.625 ACRES +/- 75 ACRES +/- 148,793 ACRES +/- 75.0 ACRES +/-
JAMES DOAK; HOMER MASON ET AL; ERIE D. SHEETS ET UX; ERIE D. SHEETS; CASSIE REESE 31 ACRES +/- 62 ACRES +/- 24 ACRES +/- 141 ACRES +/- 142 ACRES +/-

PROPOSED WORK: DRILL X CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE X
PLUG OFF OLD FORMATION PERFORATE NEW FORMATION X OTHER PHYSICAL CHANGE IN WELL
(SPECIFY) PLUG & ABANDON CLEAN OUT & REPLUG
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,800' TVD 15,200' MD

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

H6A