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west virginia department of environmental protection

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Office of Oil and Gas  
601 57<sup>th</sup> Street, S.E.  
Charleston, WV 25304  
(304) 926-0450  
fax: (304) 926-0452

Jim Justice , Governor  
Austin Caperton , Cabinet Secretary  
www.dep.wv.gov

Thursday, February 23, 2017  
WELL WORK PERMIT  
Horizontal 6A / Re-Work

ANTERO RESOURCES CORPORATION (A)  
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit approval for RICHARD UNIT 2H  
47-017-06380-00-00

This well work permit 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 any additional specific 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 of 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.

Per 35 CSR 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- 0450.



James A. Martin  
Chief

Operator's Well Number: RICHARD UNIT 2H  
Farm Name: NELSON, ERIC E. , ET AL  
U.S. WELL NUMBER: 47-017-06380-00-00  
Horizontal 6A / Re-Work  
Date Issued: 2/23/2017

Promoting a healthy environment.

02/25/2017

## PERMIT CONDITIONS

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

### CONDITIONS

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1. 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.
2. 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.
3. 24 hours prior to the initiation of the completion process the operator shall notify the Chief or his designee.
4. During the completion process the operator shall monitor annular pressures and report any anomaly noticed to the chief or his designee immediately.
5. 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.
6. The operator shall provide to the Office of Oil and Gas the dates of each of the following within 30 days of their occurrence: completion of construction of the well pad, commencement of drilling, cessation of drilling, completion of any other permitted well work, and completion of the well. Such notice shall be provided by sending an email to [DEPOOGNotify@wv.gov](mailto:DEPOOGNotify@wv.gov).

WW-6B  
(04/15)

API NO. 47-017 - 06380  
OPERATOR WELL NO. Richard Unit 2H  
Well Pad Name: Existing Hughes Pad

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

1) Well Operator: Antero Resources Corporation Operator ID: 494507062 County: 017-Doddridge District: Greenbrier Quadrangle: Big Isaac 7.5'

2) Operator's Well Number: Richard Unit 2H Well Pad Name: Existing Hughes Pad

3) Farm Name/Surface Owner: Eric E. Nelson, et al Public Road Access: CR 44

4) Elevation, current ground: 1332' Elevation, proposed post-construction: 1332'

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

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s): Marcellus Shale: 7335' TVD, Anticipated Thickness- 60 Feet, Associated Pressure- 3250#

8) Proposed Total Vertical Depth: 7335' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 15,400' MD (\*Please note: This well has been drilled. Actual Measured Depth is 15,309')

11) Proposed Horizontal Leg Length: 7409'

12) Approximate Fresh Water Strata Depths: 109', 112'

13) Method to Determine Fresh Water Depths: McClain Unit 1H (API# 47-017-06378) on same pad

14) Approximate Saltwater Depths: 1091', 1150'

15) Approximate Coal Seam Depths: 390'

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 X

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

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DAF  
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18)

**CASING AND TUBING PROGRAM**

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
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#	604'	604'	CTS, 839 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	2522'	2522'	CTS, 1027 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	20#	15,309'	15,309'	3796 Cu. Ft
Tubing	2-3/8"	New	N-80	4.7#		7100'	
Liners							

EXISTING

EXISTING

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	30"	24"	0.438"	1530	50	Class A	1.18
Fresh Water	13-3/8"	17-1/2"	0.38"/0.33"	2730/1730	1000	Class A	1.18
Coal	9-5/8"	12-1/4"	0.352"	3520	1500	Class A	1.18
Intermediate							
Production	5-1/2"	8-3/4" & 8-1/2"	0.361"	12,630	2500	Lead-HPOZ & Tail - H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11,200			
Liners							

**PACKERS**

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

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

This well has been drilled to TD - 15,309'. Antero is requesting to perforate and fracture the existing horizontal shallow well and complete Marcellus Shale.

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

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

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

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 15.86 existing acres

22) Area to be disturbed for well pad only, less access road (acres): 3.79 existing acres

23) Describe centralizer placement for each casing string:

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

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

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

25) Proposed borehole conditioning procedures:

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

\*Note: Attach additional sheets as needed.

DAF  
11/23/16

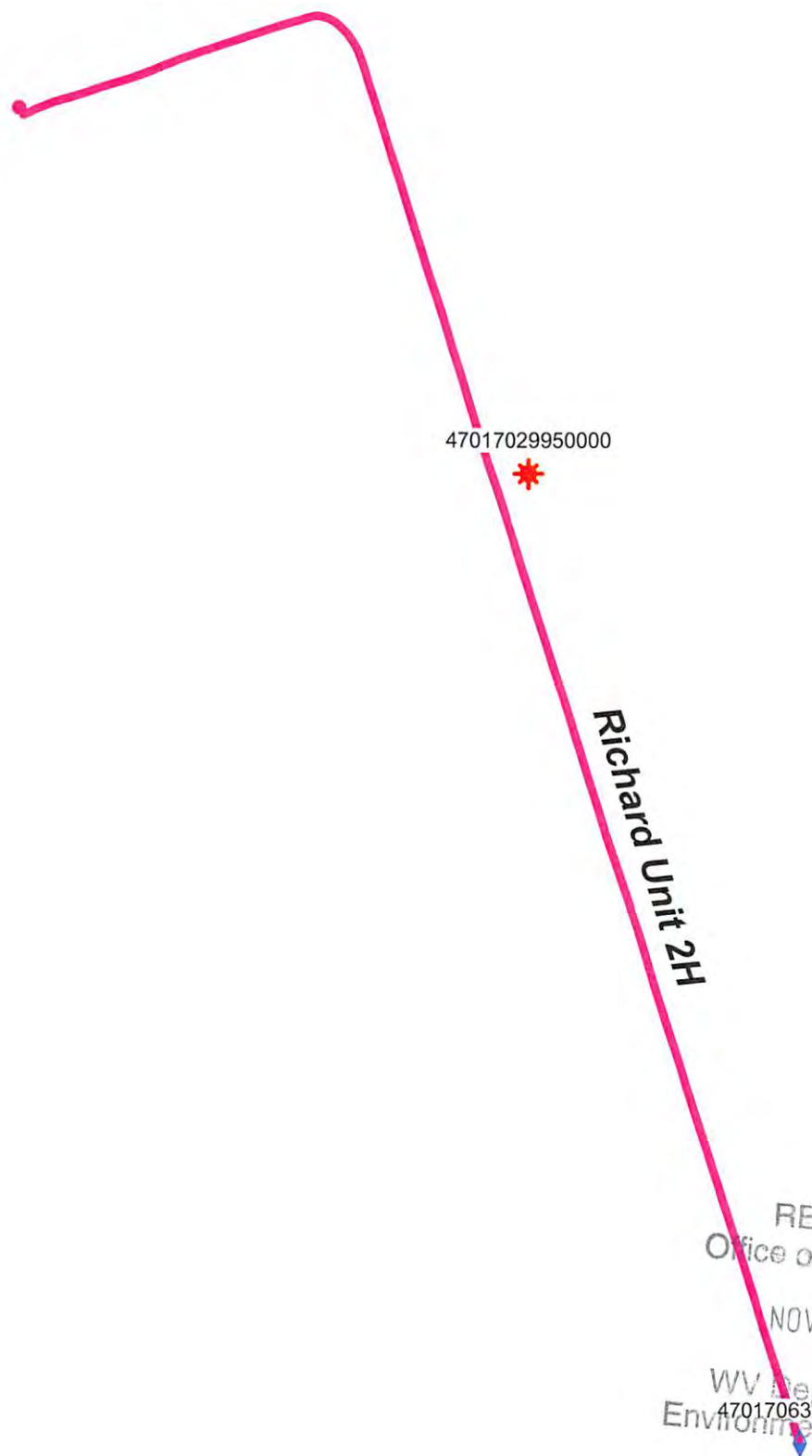
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## RICHARD UNIT 2H (HUGHES PAD)- AREA OF REVIEW 35-8-5.11 PAGE 2

LWI (APINum)	Well Name	Well Number	Operator	Hist Oper	ELEV_KB	TD	TD(SSTVD)	Perforated Formations	Producibile, Not Perforated
47017029950000	SUMMERS E MAY	1	CONSOL GAS COMPANY	STONEWALL GAS	1284	5710	-4426	Benson, Alexander	Inadequate regional data

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02/25/2017



47017029950000



Richard Unit 2H

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47017063800000



02/25/2017

WW-9  
(4/16)

47-017-06380 F

API Number 47 - 017 - 06380

Operator's Well No. Richard Unit 2H

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 494507062

Watershed (HUC 10) Headwaters Middle Island Creek Quadrangle Big Isaac 7.5'

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

Will a pit be used? Yes  No

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

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

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection ( UIC Permit Number \*UIC Permit # will be provided on Form WR-34 )
- 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 Northwestern Landfill Permit #SWF-1025/WV0109410)

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/Silt 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), Northwestern Landfill (Permit # SWF-1025/WV0109410)

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

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

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

Company Official Signature Cole Kilstrom

Company Official (Typed Name) Cole Kilstrom

Company Official Title Environmental & Regulatory Manager

Subscribed and sworn before me this 18th day of November, 2016

Samantha Marsh

Notary Public

My commission expires 12/20/2017

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SAMANTHA MARSH  
NOTARY PUBLIC  
STATE OF COLORADO  
NOTARY ID 20134079428  
MY COMMISSION EXPIRES DECEMBER 20, 2017

02/25/2017



Form WW-9

Operator's Well No. Richard Unit 2H

**Antero Resources Corporation**

Proposed Revegetation Treatment: Acres Disturbed 15.86 (existing) acres Prevegetation pH \_\_\_\_\_

Lime 2-4 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

Drill Pad (3.79) + Access Road (4.84) + Drill Pad Access Road (0.19) + Water Storage Pad (2.19) + Water Storage Access Road (0.03) + Spoil Pads (4.82) = 15.86 Acres

**Seed Mixtures**

**Temporary**

**Permanent**

Seed Type	lbs/acre
Tall Fescue	45
Perennial Rye	20

Seed Type	lbs/acre
Tall Fescue	45
Perennial Rye	20

\*or type of grass seed requested by surface owner

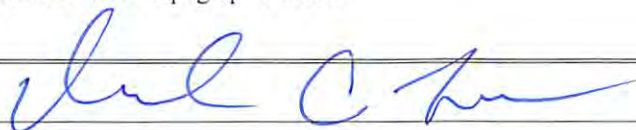
\*or type of grass seed requested by surface owner

Attach:

Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, include dimensions (L x W x D) of the pit, and dimensions (L x W), and area in acreage, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: \_\_\_\_\_



Comments: \_\_\_\_\_

Title: Oil + Gas Inspector

Date: 11/23/14

Field Reviewed?

Yes

No

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02/25/2017



**911 Address**  
**2604 Hunters Fork Road**  
**Salem, WV 26426**

## Well Site Safety Plan

### Antero Resources

**Well Name:** Gully Unit 1H & 2H, Hughes Unit 1H & 2H, Earlewine Unit 1H & 2H, Richard Unit 1H & 2H, McClain Unit 1H, Belton Unit 1H, Carol Unit 1H & 2H

**Pad Location:** HUGHES PAD  
 Doddridge County/Greenbrier District

**GPS Coordinates:**

**Entrance** - Lat 39°12'55.61"/Long -80°37'3.71" (NAD83)

**Pad Center** - Lat 39°13'9.82"/Long -80°37'13.89" (NAD83)

**Driving Directions:** From Intersection of Rte 50 and I-79 in Clarksburg. Take the exit toward Downtown/Salem, go 0.2 miles. Slight Right onto County Rd 50/73/Main St/Old Rte 50, go 1.2 miles. Continue onto South St, 0.2 miles. Continue onto Patterson Rd, 0.2 miles. Continue onto Patterson Fork Rd, 0.2 miles. Continue onto Salem Country Club Rd, 0.4 miles. Continue on Patterson Fork Rd, 1.5 miles. Slight Left onto CO Rte 15/Sherwood-Greenbrier Rd, 2.9 miles. Turn left onto CO Rte 46/2, 0.5 miles. Slight right onto Standing Stone Rd, 1.2 miles. Turn right onto Hunters Fork, 0.2 miles. Enter access road to pad.

**Alternate Route:** From the volunteer fire department in Salem, head east on W Main St towards Water Street for 0.3 miles. Turn right onto south st for 0.5 miles. Continue onto Patterson Fork Rd for 0.2 miles. Continue onto Salem Country Club Rd/Patterson Fork Rd for 1.9 miles. Slight right onto Greenbrier Rd. Continue for 1.8 miles and the access road will be on the right.

**EMERGENCY (24 HOUR) CONTACT 1-800-878-1973**

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*John A. Z...*  
 11/23/16

02/25/2017

## ***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

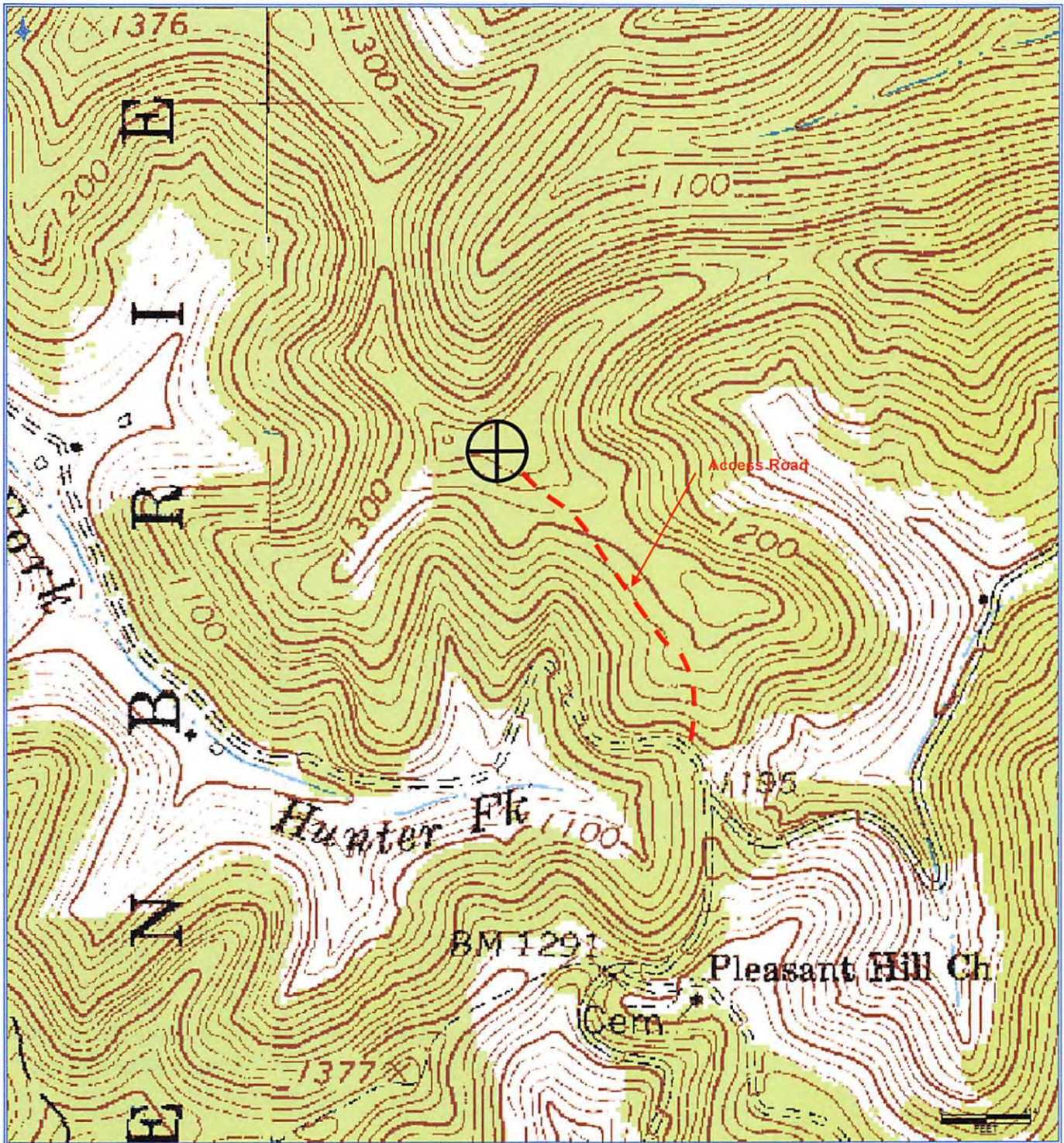
### **PRODUCTION INTERVAL**

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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**Antero Resources Corporation**  
Appalachian Basin  
Richard Unit  
Doddridge County  
Quadrangle: Big Isaac  
Watershed: Headwaters Middle Island Creek  
District: Greenbrier  
Date: 11-14-2016

LATITUDE 39°15'00"

10,581'

6,569' TO BOTTOM HOLE

LATITUDE 39°12'30"

LONGITUDE 80°35'00" TO BOTTOM HOLE

11,186' TO BOTTOM HOLE

Antero Resources Corporation  
Well No. Richard Unit 2H  
47-017-06380(AS DRILLED)

PETER C. McDONALD  
D.B. 250 PG. 578  
T.M. 07 PAR. 22  
55 AC. ±

REBAR, FOUND

AS DRILLED DATA:  
WELL 2H TOP HOLE INFORMATION:  
N: 263,960ft E: 1,682,492ft  
LAT: 39°13'09.44" LON: 80°37'14.45"  
BOTTOM HOLE INFORMATION:  
N: 257,053ft E: 1,686,410ft  
LAT: 39°12'01.65" LON: 80°36'23.58"  
WEST VIRGINIA COORDINATE  
SYSTEM OF 1927 NORTH ZONE.  
ZONE WAS DERIVED FROM  
MEASUREMENTS TAKEN WITH  
TRIMBLE GEOXT SUBMETER  
MAPPING GRADE GPS UNIT.  
PLAT ORIENTATION, CORNER,  
AND WELL REFERENCE TIE LINES  
ARE BASED ON GRID NORTH.

(NAD) 83 (UTM) ZONE 17 COORDS:  
WELL 2H TOP HOLE INFORMATION:  
N: 4,341,190m E: 532,760m  
BOTTOM HOLE INFORMATION:  
N: 4,339,105m E: 533,989m

LORY W. GLEVENGER ET AL  
D.B. 153 PG. 776  
T.M. 07 PAR. 21  
82.68 AC. ±

47-017-06380  
WELL NO. 2H

2H BOTTOM HOLE

MARSHALL B. NESTOR JR ET AL  
D.B. 276 PG. 577  
T.M. 10 PAR. 11.2  
151.36 AC. ±

JEFFREY G. BURNSIDE ET AL  
D.B. 249 PG. 575  
T.M. 10 PAR. 01  
23 AC. ±

JOHN R. BUNTEN ET AL  
D.B. 174 PG. 332  
T.M. 10 PAR. 11  
26 AC. ±

WILLIAM A. MCCLAIN ET AL  
M.B. 12 PG. 10  
T.M. 10 PAR. 02  
29 AC. ±

JANE NOWLIN LEASE

EDWIN W. COX ET AL  
D.B. 259 PG. 323  
T.M. 10 PAR. 13  
79.52 AC. ±

E. MAY SUMMERS LEASE

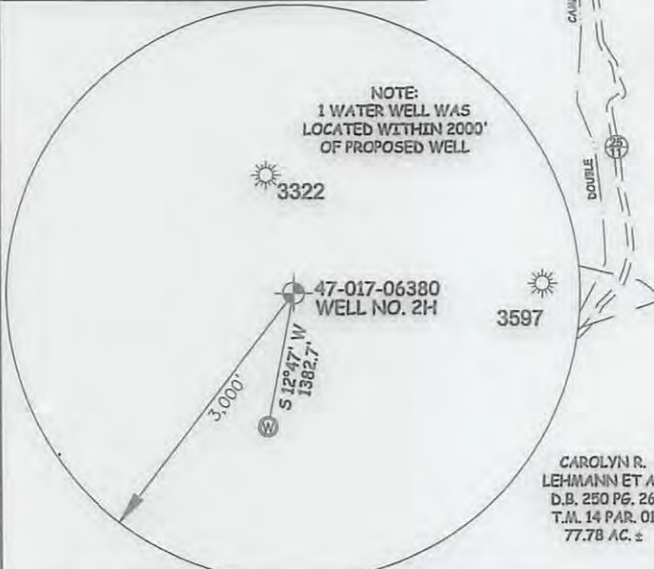
WILLIAM A. MCCLAIN ET AL  
M.B. 12 PG. 10  
T.M. 10 PAR. 14  
38 AC. ±

PAD LAYOUT  
NOT TO SCALE

CAROLE UNIT 1H  
CAROLE UNIT 2H  
BELTON UNIT 1H  
MCCLAIN UNIT 1H  
RICHARD UNIT 2H  
EARLEWINE UNIT 1H  
HUGHES UNIT 2H  
GULLY UNIT 1H  
GULLY UNIT 2H

- NOTES
1. NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.
  2. TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ALLEGHENY SURVEYS, INC.
  3. AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
  4. WLS IS NOT CERTIFYING THE DATA AND INFORMATION PROVIDED LISTED IN NOTES 2 AND 3, ONLY THE RELATIONSHIP TO THE DATA AND INFORMATION PROVIDED TO THE LEASE BOUNDARIES.
  5. WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.

NOTE:  
1 WATER WELL WAS  
LOCATED WITHIN 2000'  
OF PROPOSED WELL



JOB # 12-148WA  
DRAWING # RICHARD2HAD  
SCALE 1" = 1000'  
MINIMUM DEGREE OF ACCURACY SUBMETER  
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS



STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS

WILLOW LAND SURVEYING PLLC  
220 MASONIC AVE. PENNSBORO  
WEST VIRGINIA 26415

LEGEND

- Surface Owner Boundary Lines +/-
- Interior Surface Tracts +/-
- Existing Fence
- Found monument, as noted
- Proposed Well Path
- As Drilled Well Path

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

WELL TYPE: OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL   
(IF "GAS") PRODUCTION  STORAGE  DEEP  SHALLOW   
LOCATION: ELEVATION 1,354' ORIGINAL 1,332' AS DRILLED WATERSHED HEADWATERS OF MIDDLE ISLAND CREEK

DATE 11/14/2016  
OPERATOR'S WELL# RICHARD UNIT #2H

API WELL # 47 - 017 - 06380 F  
STATE COUNTY PERMIT

QUADRANGLE BIG ISSAC 7.5' DISTRICT GREENBRIER COUNTY DODD BRIDGE  
SURFACE OWNER ERIC E. NELSON, ET AL ACREAGE 41.92 ACRES +/-  
OIL & GAS ROYALTY OWNER PAULINE BURNETT; ANNA S. LAYMAN; ANNA S. LAYMAN LEASE ACREAGE 14.29 ACRES; 25.16 ACRES; 23.9625 ACRES;  
ANNA S. LAYMAN; RICHARD CROUSER; JANE NOWLIN; E. MAY SUMMERS; CARL R. MARTIN ET AL; EDWARD L. CUMPTON; DAVID E. BOWYER 10.275 ACRES; 20.93 ACRES; 76 ACRES; 30 ACRES; 115 ACRES; 66 ACRES; 30 ACRES

PROPOSED WORK: DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE   
PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL  
(SPECIFY) (X) AS DRILLED PLUG & ABANDON CLEAN OUT & REPLUG  
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 7,335' TVD 15,309' MD

WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER  
ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD  
FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

02/25/2017

LATITUDE 39°15'00"

10,581'

6,569' TO BOTTOM HOLE

LATITUDE 39°12'30"

LONGITUDE 80°35'00"

11,186'

LONGITUDE 80°35'00"

Antero Resources Corporation  
Well No. Richard Unit 2H  
47-017-06380 (AS DRILLED)

PETER C. McDONALD  
D.B. 250 PG. 578  
T.M. 07 PAR. 22  
55 AC. ±

REBAR, FOUND

AS DRILLED DATA:  
WELL 2H TOP HOLE INFORMATION:  
N: 263,960ft E: 1,682,492ft  
LAT: 39°13'09.44" LON: 80°37'14.45"  
BOTTOM HOLE INFORMATION:  
N: 257,053ft E: 1,686,410ft  
LAT: 39°12'01.65" LON: 80°36'23.58"  
WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

(NAD) 83 (UTM) ZONE 17 COORDS:  
WELL 2H TOP HOLE INFORMATION:  
N: 4,341,190m E: 532,760m  
BOTTOM HOLE INFORMATION:  
N: 4,339,105m E: 533,989m

LORY W. CLEVENGER ET AL  
D.B. 153 PG. 776  
T.M. 07 PAR. 21  
82.66 AC. ±

REBAR, FOUND

47-017-06380  
WELL NO. 2H

JEFFREY G. BURNSIDE ET AL  
D.B. 249 PG. 575  
T.M. 10 PAR. 01  
23 AC. ±

ANNA S. LAYMAN LEASE

MARSHALL B. NESTOR JR ET AL  
D.B. 276 PG. 577  
T.M. 10 PAR. 11.2  
151.36 AC. ±

PAD LAYOUT  
NOT TO SCALE

JOHN R. BUNTEN ET AL  
D.B. 174 PG. 332  
T.M. 10 PAR. 11  
26 AC. ±

WILLIAM A. McCLAIN ET AL  
M.B. 12 PG. 10  
T.M. 10 PAR. 02  
29 AC. ±

JANE NOWLIN LEASE

EDWIN W. COX ET AL  
D.B. 259 PG. 323  
T.M. 10 PAR. 13  
75.52 AC. ±

E. MAY SUMMERS LEASE

WILLIAM A. McCLAIN ET AL  
M.B. 12 PG. 10  
T.M. 10 PAR. 14  
38 AC. ±

GLENN J. MURRAY ET AL  
D.B. 202 PG. 479  
T.M. 10 PAR. 19  
55.25 AC. ±

RICHARD D. BREWER ET AL  
D.B. 243 PG. 635  
T.M. 10 PAR. 19.1  
54 AC. ±

THERESA J. CUTLIP  
D.B. 279 PG. 351  
T.M. 10 PAR. 20.1  
33.04 AC. ±

CARL R. MARTIN ET AL LEASE

MICHAEL D. MESSINA ET AL  
D.B. 272 PG. 234  
T.M. 10 PAR. 20.2  
41.91 AC. ±

FRANKLIN K. FIDLER  
D.B. 203 PG. 473  
T.M. 10 PAR. 26  
134 AC. ±

CHARLES F. HESTON ET AL  
D.B. 266 PG. 186  
T.M. 10 PAR. 20  
40 AC. ±

MARK W. SIDWELL ET AL  
D.B. 245 PG. 399  
T.M. 10 PAR. 28.1  
16.2 AC. ±

MARK W. SIDWELL ET AL  
D.B. 245 PG. 399  
T.M. 10 PAR. 28  
27.11 AC. ±

JOHN H. STROTHER ET AL  
D.B. 218 PG. 315  
T.M. 10 PAR. 30  
40.39 AC. ±

DAVID E. BOWYER LEASE

CAROLYN R. LEHMANN ET AL  
D.B. 250 PG. 26  
T.M. 14 PAR. 01  
77.78 AC. ±

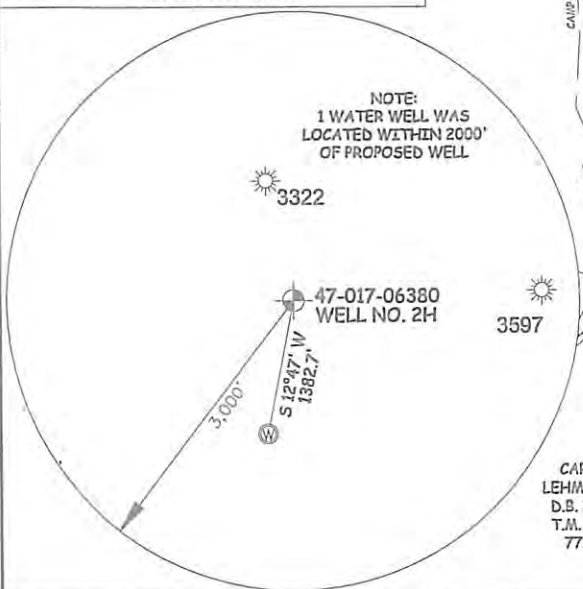
RICHARD L. WALLACE  
D.B. 177 PG. 333  
T.M. 14 PAR. 03  
60 AC. ±

JON RICH ET AL  
D.B. 185 PG. 705  
T.M. 10 PAR. 33  
30 AC. ±

CAROLE UNIT 1H  
CAROLE UNIT 2H  
BELTON UNIT 1H  
McCLAIN UNIT 1H  
RICHARD UNIT 2H  
EARLEWINE UNIT 1H  
EARLEWINE UNIT 2H  
HUGHES UNIT 1H  
GULLY UNIT 2H

- 1. NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.
- 2. TOP HOLE DATA SHOWN HEREON WAS PROVIDED BY ALLEGHENY SURVEYS, INC.
- 3. AS DRILLED DATA WAS PROVIDED BY ANTERO RESOURCES CORPORATION.
- 4. WLS IS NOT CERTIFYING THE DATA AND INFORMATION PROVIDED LISTED IN NOTES 2 AND 3, ONLY THE RELATIONSHIP TO THE DATA AND INFORMATION PROVIDED TO THE LEASE BOUNDARIES.
- 5. WLS IS BY NO MEANS RESPONSIBLE FOR ANY ERRORS OR INACCURACIES WITH THE DATA AND INFORMATION THAT HAS BEEN PROVIDED.

NOTE:  
1 WATER WELL WAS LOCATED WITHIN 2000' OF PROPOSED WELL



JOB # 12-148WA  
DRAWING # RICHARD2HAD  
SCALE 1" = 1000'  
MINIMUM DEGREE OF ACCURACY SUBMETER  
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS



STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS

WILLOW LAND SURVEYING PLLC  
220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415

LEGEND

- Surface Owner Boundary Lines +/-
- Interior Surface Tracts +/-
- Existing Fence
- Found monument, as noted
- Proposed Well Path
- As Drilled Well Path

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 1,354' ORIGINAL 1,332' AS DRILLED WATERSHED HEADWATERS OF MIDDLE ISLAND CREEK  
QUADRANGLE BIG ISSAC 7.5' DISTRICT GREENBRIER COUNTY DODD

SURFACE OWNER ERIC E. NELSON, ET AL ACREAGE 41.92 ACRES +/-  
OIL & GAS ROYALTY OWNER PAULINE BURNETT; ANNA S. LAYMAN; ANNA S. LAYMAN LEASE ACREAGE 14.29 ACRES +/-; 25.16 ACRES +/-; 23.9625 ACRES +/-; ANNA S. LAYMAN; RICHARD CROUSER; JANE NOWLIN; E. MAY SUMMERS; CARL R. MARTIN ET AL; EDWARD L. CUMPSTON; DAVID E. BOWYER E 10.275 ACRES +/-; 29.93 ACRES +/-; 76 ACRES +/-; 38 ACRES +/-; 115 ACRES +/-; 86 ACRES +/-; 30 ACRES +/-

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE  
PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL  
(SPECIFY) (X) AS DRILLED PLUG & ABANDON CLEAN OUT & REPLUG  
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 7,335' TVD 15,309' MD

WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER  
ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD  
DENVER, CO 80202 CHARLESTON, WV 25313

RECEIVED 11/14/2016  
Office of Oil and Gas  
NOV 25 2016  
02/25/2017

INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE  
Chapter 22, Article 6A, Section 5(a)(5)  
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

(1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;

(2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<b><u>Pauline Burnett Lease</u></b>			
Paulette Burnette	Tenmile Land	1/8	0246/0476
Tenmile Land	Antero Resources Appalachian Corporation	Assignment	0266/0214
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<b><u>Anna S. Layman Lease (TM 7, PCL 34)</u></b>			
Anna S. Layman	Antero Resources Appalachian Corporation	1/8+	0271/0631
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<b><u>Anna S. Layman Lease (TM 10, PCL 1.3)</u></b>			
Anna S. Layman	Antero Resources Appalachian Corporation	1/8+	0267/0378
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<b><u>Richard Crouser Lease</u></b>			
Richard Crouser	Antero Resources Appalachian Corporation	1/8+	0289/0513
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<b><u>Jane Nowlin Lease</u></b>			
Jane Nowlin	Antero Resources Appalachian Corporation	1/8+	0317/0159
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<b><u>E. May Summers Lease</u></b>			
E. May Summers	Clarence W. Mutschelknaus	1/8	0118/0649
Clarence W. Mutschelknaus	Antero Resources Appalachian Corporation	Assignment	0262/0074
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<b><u>Carl R. Martin, et al Lease</u></b>			
Carl R. Martin, et al	Clarence W. Mutschelknaus	1/8	0198/0499
Clarence W. Mutschelknaus	Bluestone Energy Partners	Assignment	0233/0641
Bluestone Energy Partners	Antero Resources Bluestone, LLC, a wholly owned subsidiary of Antero Resources Appalachian Corp.	Affidavit Regarding Merger	DB0288/0001
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<b><u>Edward L. Cumpston Lease</u></b>			
Edward L. Cumpston, et ux	Antero Resources Appalachian Corporation	1/8+	0265/0403
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1

RECEIVED  
Office of Oil and Gas  
NOV 22 2016  
WV Department of  
Environmental Protection

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

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

02/25/2017



WW-6A1  
(5/13)

Operator's Well No. Richard Unit 2H

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE  
Chapter 22, Article 6A, Section 5(a)(5)  
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
<u>David E. Bowyer Lease</u>	David E. Bowyer	Antero Resources Appalachian Corporation	1/8+	0279/0446
	Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1

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

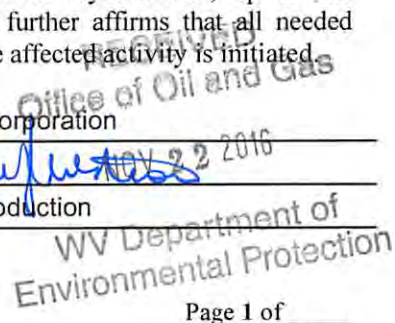
**Acknowledgement of Possible Permitting/Approval  
In Addition to the Office of Oil and Gas**

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

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

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

Well Operator: Antero Resources Corporation  
 By: Kevin Kilstrom  
 Its: Vice President of Production



17-06380F



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

November 17, 2016

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

RE: Richard Unit 2H (API # 47-017-06380)  
Quadrangle: Big Isaac 7.5'  
Doddridge County/ Greenbrier District, West Virginia

Mr. Martin:

Antero Resources Corporation (Antero) is submitting the following application for a new well work permit for the Richard Unit 2H horizontal shallow well. As an authorized representative, I certify that Antero has the right to extract, produce or market the oil or gas for all leases through which the Richard Unit 2H horizontal lateral will drill through including any and all roads crossed under as identified on the attached survey plat.

Sincerely,

A handwritten signature in blue ink, appearing to read "Tim Rady", is written over the word "Sincerely,".

Tim Rady  
Director, Land Operations- Marcellus

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Office of Oil and Gas  
NOV 22 2016  
WV Department of  
Environmental Protection

02/25/2017

FORM WW-6A1  
EXHIBIT 1

17-06380F

FILED

JUN 10 2013

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



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

APPLICATION FOR  
AMENDED CERTIFICATE  
OF AUTHORITY

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

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

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

- Name under which the corporation was authorized to transact business in WV: Antero Resources Appalachian Corporation
- Date Certificate of Authority was issued in West Virginia: 6/25/2008
- Corporate name has been changed to: Antero Resources Corporation  
(Attach one **Certified Copy of Name Change** as filed in home State of incorporation.)
- Name the corporation elects to use in WV: Antero Resources Corporation  
(due to home state name not being available)
- Other amendments:   
(attach additional pages if necessary)
- Name and phone number of contact person. (This is optional, however, if there is a problem with the filing, listing a contact person and phone number may avoid having to return or reject the document.)  
Alvyn A. Schopp (303) 357-7310  
Contact Name Phone Number
- Signature information (See below **\*Important Legal Notice Regarding Signature\***):  
Print Name of Signer: Alvyn A. Schopp Title/Capacity: Authorized Person  
Signature: [Handwritten Signature] Date: June 10, 2013

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

Form CF-4

Issued by the Office of the Secretary of State

RECEIVED  
Office of Oil and Gas  
Revised 4/13  
NOV 22 2016  
WV Department of  
Environmental Protection

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

Date of Notice Certification: 11/17/2016

API No. 47- 017 - 06380  
Operator's Well No. Richard Unit 2H  
Well Pad Name: Existing Hughes Pad

**Notice has been given:**

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>532760m</u>
County:	<u>Doddridge</u>		Northing:	<u>4341190m</u>
District:	<u>Greenbrier</u>	Public Road Access:	<u>CR 44 (Hunters Fork Rd)</u>	
Quadrangle:	<u>Blg Isaac 7.5'</u>	Generally used farm name:	<u>Eric E. Nelson, et al</u>	
Watershed:	<u>Headwaters Middle Island Creek</u>			

Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (i) it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section ten of this article, the information required by subsections (b) and (c), section sixteen of this article; (ii) that the requirement was deemed satisfied as a result of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-a; or (iii) the notice requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to West Virginia Code § 22-6A-11(b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section ten of this article have been completed by the applicant.

<p>Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input checked="" type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p style="padding-left: 100px;"><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p><b>OOG OFFICE USE ONLY</b></p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p>
--	---

**Required Attachments:**

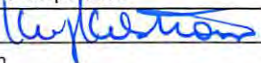
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been notified as required under West Virginia Code § 22-6A. Pursuant to West Virginia Code § 22-6A-11(b), the Certification of Notice to the person may be made by affidavit of personal service, the return receipt card or other postal receipt for certified mailing.

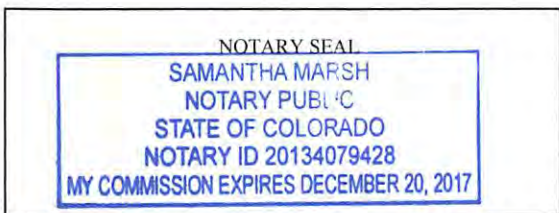
RECEIVED  
Office of Oil and Gas  
Nov 22 2016  
West Virginia Department of Environmental Protection

02/25/2017

**Certification of Notice is hereby given:**

THEREFORE, I Kevin Kilstrom, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

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



Subscribed and sworn before me this 17th day of November 2016  
Samantha Marsh Notary Public  
 My Commission Expires 12/20/2017

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).

RECEIVED  
 Office of Oil and Gas  
 NOV 22 2016  
 WV Department of  
 Environmental Protection

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

**Notice Time Requirement:** notice shall be provided no later than the **filing date of permit application.**

**Date of Notice:** 11/21/2016 **Date Permit Application Filed:** 11/21/2016

**Notice of:**

- PERMIT FOR ANY WELL WORK
- CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

**Delivery method pursuant to West Virginia Code § 22-6A-10(b)**

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

Pursuant to W. Va. Code § 22-6A-10(b) no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site Safety Plan ("WSSP") to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

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

SURFACE OWNER(s)

Name: PLEASE SEE ATTACHMENT

Address: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

SURFACE OWNER(s) (Road and/or Other Disturbance)

Name: \_\_\_\_\_

Address: \_\_\_\_\_

Name: \_\_\_\_\_

Address: \_\_\_\_\_

SURFACE OWNER(s) (Impoundments or Pits)

Name: \_\_\_\_\_

Address: \_\_\_\_\_

COAL OWNER OR LESSEE

Name: PLEASE SEE ATTACHMENT

Address: \_\_\_\_\_

COAL OPERATOR

Name: NO DECLARATIONS ON RECORD WITH COUNTY

Address: \_\_\_\_\_

WATER PURVEYOR(s)/OWNER(s) OF WATER WELL, SPRING OR OTHER WATER SUPPLY SOURCE

Name: PLEASE SEE ATTACHMENT

Address: \_\_\_\_\_

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\*Please attach additional forms if necessary

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Office of Oil and Gas  
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WV Department of  
Environmental Protection

**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-10(b), notice is hereby given that the undersigned well operator has applied for a permit for well work or for a certificate of approval for the construction of an impoundment or pit.

**This Notice Shall Include:**

Pursuant to W. Va. Code § 22-6A-10(b), this notice shall include: (1) copies of the application; (2) the erosion and sediment control plan required by section seven of this article; and (3) the well plat.

Pursuant to W. Va. Code § 22-6A-10(f), this notice shall include: (1) a statement of the time limits for filing written comments; (2) who may file written comments; (3) the name and address of the secretary for the purpose of filing the comments and obtaining additional information; and (4) a statement that the persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

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

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

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

**Well Location Restrictions**

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No well pad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items

examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such factors, if necessary.

**Water Well Testing:**

Pursuant to West Virginia Code § 22-6A-10(d), notification shall be made, with respect to surface landowners identified in subsection (b) or water purveyors identified in subdivision (5), subsection (b) of this section, of the opportunity for testing their water well. The operator shall provide an analysis to such surface landowner or water purveyor at their request.

**Water Testing Laboratories:**

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

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

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

**Written Comment:**

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary at:

Chief, Office of Oil and Gas  
Department of Environmental Protection  
601 57<sup>th</sup> St. SE  
Charleston, WV 25304  
(304) 926-0450

Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water. **NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.**

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### **Time Limits and Methods for Filing Comments.**

The law requires these materials to be served on or before the date the operator files its Application. You have **THIRTY (30) DAYS** after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Pursuant to West Virginia Code § 22-6A-11(c)(2), Any objections of the affected coal operators and coal seam owners and lessees shall be addressed through the processes and procedures that exist under sections fifteen, seventeen and forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article. The written comments filed by the parties entitled to notice under subdivisions (1), (2), (4), (5) and (6), subsection (b), section ten of this article shall be considered by the secretary in the permit issuance process, but the parties are not entitled to participate in the processes and proceedings that exist under sections fifteen, seventeen or forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article.

### **Comment Requirements**

Your comments must be in writing and include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

Disclaimer: All comments received will be placed on our web site <http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx> and the applicant will automatically be forwarded an email notice that such comments have been submitted. The applicant will be expected to provide a response to comments submitted by any surface owner, water purveyor or natural gas storage operator noticed within the application.

### **Permit Denial or Condition**

The Chief has the power to deny or condition a well work permit. Pursuant to West Virginia Code § 22-6A-8(d), the permit may not be issued or be conditioned, including conditions with respect to the location of the well and access roads prior to issuance if the director determines that:

- (1) The proposed well work will constitute a hazard to the safety of persons;
- (2) The plan for soil erosion and sediment control is not adequate or effective;
- (3) Damage would occur to publicly owned lands or resources; or
- (4) The proposed well work fails to protect fresh water sources or supplies.

A permit may also be denied under West Virginia Code § 22-6A-7(k), the secretary shall deny the issuance of a permit if the secretary determines that the applicant has committed a substantial violation of a previously issued permit for a horizontal well, including the applicable erosion and sediment control plan associated with the previously issued permit, or a substantial violation of one or more of the rules promulgated under this article, and in each instance has failed to abate or seek review of the violation within the time prescribed by the secretary pursuant to the provisions of subdivisions (1) and (2), subsection (a), section five of this article and the rules promulgated hereunder, which time may not be unreasonable.

Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the permit if the person requests receipt of them as a part of the written comments submitted concerning the permit application. Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

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WW-6A  
(8-13)

API NO. 47- 017 - 06380 **47-017-06380 F**  
OPERATOR WELL NO. Richard Unit 2H  
Well Pad Name: Existing Hughes Pad

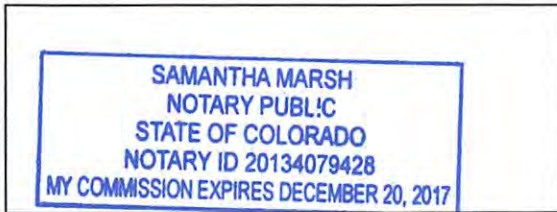
**Notice is hereby given by:**

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

Address: 1615 Wynkoop Street  
Denver, CO 80202  
Facsimile: 303-357-7315

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).



Subscribed and sworn before me this 21<sup>st</sup> day of November 2016  
Samantha Marsh Notary Public  
My Commission Expires 12/20/2017

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02/25/2017

**WW-6A Notice of Application Attachment (HUGHES PAD):**

**List of Surface Owner(s) with Proposed Disturbance associated with Hughes Well Pad:**

**WELL PAD – All owners were notified of all well work permit applications, and have executed signed Surface Use Agreements with Antero Resources Corporation.**

**TM 7 PCL 34**

**Owner:** Eric E. Nelson  
c/o First American Real Est Tax  
**Address:** 1 First American Way  
Westlake, TX 76262

**2<sup>nd</sup> Address:** RR 1 Box 356  
Salem, WV 26426

**TM 10 PCL 1**

**Owner:** Jeffery G. & Darlene R. Burnside  
**Address:** RR 1 Box 386-A  
Salem, WV 26426

**2<sup>nd</sup> Address:** 2291 Hunters Fork Rd  
Salem, WV 26426

**TM 7 PCL 22**

**Owner:** Peter C. McDonald  
**Address:** RR 1 Box 419  
Salem, WV 26426

**2<sup>nd</sup> Address:** 331 Black Lick Rd  
Salem, WV 26426

**ROAD AND/OR OTHER DISTURBANCE – All owners have executed signed Surface Use and/or Road Agreements with Antero Resources Corporation. However, they were only notified if their tracts were overlying the oil and gas leasehold being developed by the proposed well work.**

**TM 7 PCL 34 & TM 10 PCL 1.3**

**Owner:** Eric E. Nelson (ON LEASE)  
c/o First American Real Est Tax  
**Address:** 1 First American Way  
Westlake, TX 76262

**2<sup>nd</sup> Address:** RR 1 Box 356 (ON LEASE)  
Salem, WV 26426

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**WW-6A Notice of Application Attachment (HUGHES PAD):  
ROAD AND/OR OTHER DISTURBANCE (cont.)**

**TM 10 PCL 1/1.1**

**Owner:** Jeffery G. & Darlene R. Burnside

**Address:** RR 1 Box 386-A  
Salem, WV 26426

**2<sup>nd</sup> Address:** 2291 Hunters Fork Rd  
Salem, WV 26426

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**WW-6A Notice of Application Attachment (HUGHES PAD):**

**COAL OWNER OR LESSEE**

**Owner:** Consolidation Coal Company  
CONSOL Energy, Inc. – CNX Center  
Engineering & Operations Support – Coal, ATTN: Analyst  
**Address:** 1000 CONSOL Energy Dr.  
Canonsburg, PA 15317

**WATER SOURCE OWNERS – Within 1500'**

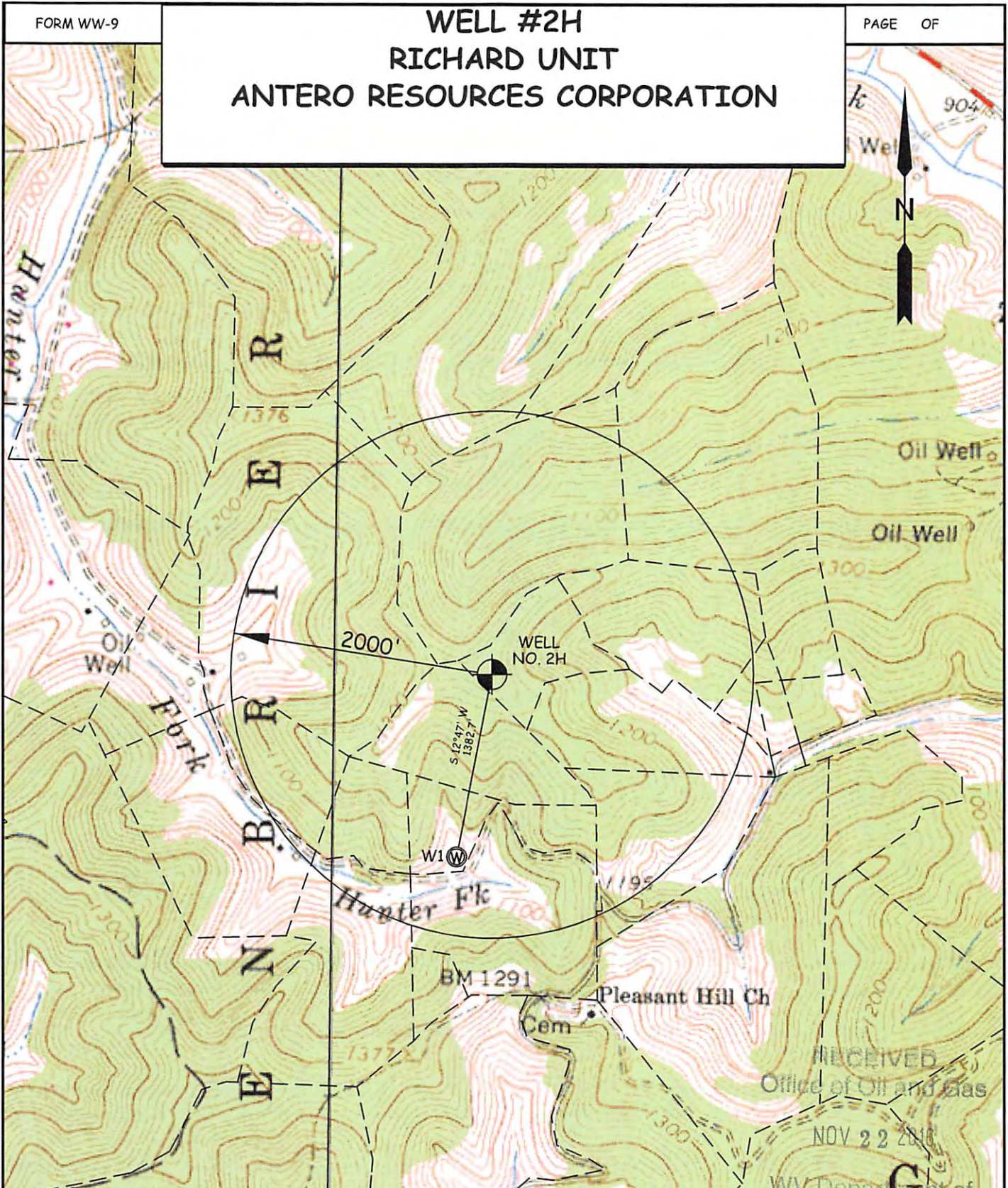
**Owner:** Jeffery G. & Darlene R. Burnside  
**Address:** RR 1 Box 386-A  
Salem, WV 26426  
**2<sup>nd</sup> Address:** 2291 Hunters Fork Rd  
Salem, WV 26426

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FORM WW-9

**WELL #2H**  
**RICHARD UNIT**  
**ANTERO RESOURCES CORPORATION**

PAGE OF



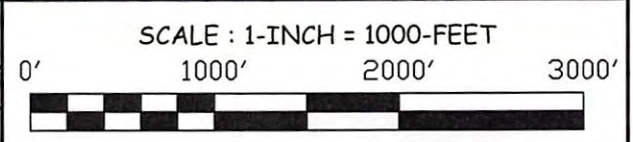
WELL	SURFACE OWNER	ADDRESS
W1	JEFFREY G. BURNSIDE ET AL	2291 Hunters Fork Road, Salem, WV 26426

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

TOPO SECTION(S) OF :  
 BIG ISAAC 7.5' QUAD.  
 JOB #: 12-148WA  
 FILE: RICHARD2HWATERMAP

DATE: 03/25/13

DRAWN BY: C.J.P.



**STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
NOTICE OF INTENT TO DRILL**

Pursuant to W. Va. Code § 22-6A-16(b), the Notice of Intent to Drill is only required if the notice requirements of W. Va. Code § 22-6A-10(a) have NOT been met or if the Notice of Intent to Drill requirement has NOT been waived in writing by the surface owner.

**Notice Time Requirement:** Notice shall be provided at least TEN (10) days prior to filing a permit application.

**Date of Notice:** 11/08/2016 **Date Permit Application Filed:** 11/21/2016

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

HAND DELIVERY       CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

Pursuant to W. Va. Code § 22-6A-16(b), at least ten days prior to filing a permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner notice of its intent to enter upon the surface owner's land for the purpose of drilling a horizontal well: *Provided*, That notice given pursuant to subsection (a), section ten of this article satisfies the requirements of this subsection as of the date the notice was provided to the surface owner: *Provided, however*, That the notice requirements of this subsection may be waived in writing by the surface owner. The notice, if required, shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative.

**Notice is hereby provided to the SURFACE OWNER(s):**

Name: PLEASE SEE ATTACHMENT  
Address: \_\_\_\_\_  
\_\_\_\_\_

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
\_\_\_\_\_

**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-16(b), notice is hereby given that the undersigned well operator has an intent to enter upon the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>532757.99126m (approximate pad center)</u>
County:	<u>Doddridge</u>		Northing:	<u>4341192.195459m (approximate pad center)</u>
District:	<u>Greenbrier</u>	Public Road Access:	<u>CR 44 (Hunters Fork Rd.)</u>	
Quadrangle:	<u>Big Isaac</u>	Generally used farm name:	<u>Nelson, Eric E. et al</u>	
Watershed:	<u>Headwaters Middle Island Creek</u>			

**This Notice Shall Include:**

Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Notice is hereby given by:**

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

Authorized Representative: Samantha Marsh  
Address: 1615 Wynkoop Street  
Denver, CO 80202  
Telephone: 303-357-7310  
Email: smarsh@anteroresources.com  
Facsimile: 303-357-7315

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).

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NOV 25 2016  
WV Department of  
Environmental Protection  
TM 10, PCL 1  
TM 7, PCL 22  
TM 7, PCL 34  
02/25/2017

**WW-6A4 Notice of Intent to Drill Attachment:**

**Surface Owners:**

**Owner:** Eric E. Nelson  
c/o First American Real Est Tax  
**Address:** 1 First American Way  
Westlake, TX 76262

**2<sup>nd</sup> Address:** RR 1 Box 356  
Salem, WV 26426

**Owner:** Jeffery G. & Darlene R. Burnside  
**Address:** RR 1 Box 386-A  
Salem, WV 26426

**2<sup>nd</sup> Address:** 2291 Hunters Fork Rd  
Salem, WV 26426

**Owner:** Peter C. McDonald  
**Address:** RR 1 Box 419  
Salem, WV 26426

**2<sup>nd</sup> Address:** 331 Black Lick Rd  
Salem, WV 26426

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**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
**NOTICE OF PLANNED OPERATION**

**Notice Time Requirement:** notice shall be provided no later than the **filing date of permit application.**

**Date of Notice:** 11/21/2016      **Date Permit Application Filed:** 11/21/2016

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

- |  |                               |
|--|-------------------------------|
| <input checked="" type="checkbox"/> CERTIFIED MAIL | <input type="checkbox"/> HAND |
| RETURN RECEIPT REQUESTED                           | DELIVERY                      |

Pursuant to W. Va. Code § 22-6A-16(c), no later than the date for filing the permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner whose land will be used for the drilling of a horizontal well notice of the planned operation. The notice required by this subsection shall include: (1) A copy of this code section; (2) The information required to be provided by subsection (b), section ten of this article to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. (d) The notices required by this section shall be given to the surface owner at the address listed in the records of the sheriff at the time of notice.

**Notice is hereby provided to the SURFACE OWNER(s)**

(at the address listed in the records of the sheriff at the time of notice):

Name: <u>PLEASE SEE ATTACHMENT</u>	Name: _____
Address: _____	Address: _____

**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-16(c), notice is hereby given that the undersigned well operator has developed a planned operation on the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State: <u>West Virginia</u>	UTM NAD 83	Easting: <u>532760m</u>
County: <u>Doddridge</u>		Northing: <u>4341190m</u>
District: <u>Greenbrier</u>	Public Road Access: <u>CR 44 (Hunters Fork Rd)</u>	
Quadrangle: <u>Big Isaac 7.5'</u>	Generally used farm name: <u>Eric E. Nelson, et al</u>	
Watershed: <u>Headwaters Middle Island Creek</u>		

**This Notice Shall Include:**

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by **W. Va. Code § 22-6A-10(b)** to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

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

**Oil and Gas Privacy Notice:**

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).

NOV 22 2016

Office of Oil and Gas  
WV Department of  
Environmental Protection

02/25/2017

**WW-6A5 Notice of Planned Operations Attachment:****Surface Owners:**

**Owner:** Eric E. Nelson  
c/o First American Real Est Tax  
**Address:** 1 First American Way  
Westlake, TX 76262

**2<sup>nd</sup> Address:** RR 1 Box 356  
Salem, WV 26426

**Owner:** Jeffery G. & Darlene R. Burnside  
**Address:** RR 1 Box 386-A  
Salem, WV 26426

**2<sup>nd</sup> Address:** 2291 Hunters Fork Rd  
Salem, WV 26426

**Owner:** Peter C. McDonald  
**Address:** RR 1 Box 419  
Salem, WV 26426

**2<sup>nd</sup> Address:** 331 Black Lick Rd  
Salem, WV 26426

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Office of Oil and Gas  
NOV 22 2016  
WV Department of  
Environmental Protection

02/25/2017



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION  
**Division of Highways**

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

Earl Ray Tomblin  
Governor

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

November 15, 2016

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

Subject: DOH Permit for the Hughes Pad, Doddridge County ✓  
Richard Unit 2H Well site

Dear Mr. Martin,

This well site will be accessed from a DOH permit #04-2013-0742 which has been issued to Antero Resources Corporation for access to the State Road for a well site located off of Doddridge County Route 44 SLS.

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

Very Truly Yours,

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

Cc: Kara Quackenbush  
Antero Resources Corporation  
CH, OM, D-4  
File

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Environmental Protection

# List of Anticipated Additives Used for Fracturing or Stimulating Well

Additives	Chemical Abstract Service Number (CAS #)
Fresh Water	7732-18-5
2 Phosphobutane 1,2,4 tricarboxylic acid	37971-36-1
Ammonium Persulfate	7727-54-0
Anionic copolymer	Proprietary
Anionic polymer	Proprietary
BTEX Free Hydrotreated Heavy Naphtha	64742-48-9
Cellulase enzyme	Proprietary
Demulsifier Base	Proprietary
Ethoxylated alcohol blend	Mixture
Ethoxylated Nonylphenol	68412-54-4
Ethoxylated oleylamine	26635-93-8
Ethylene Glycol	107-21-1
Glycol Ethers	111-76-2
Guar gum	9000-30-0
Hydrogen Chloride	7647-01-0
Hydrotreated light distillates, non-aromatic, BTEX free	64742-47-8
Isopropyl alcohol	67-63-0
liquid, 2,2-dibromo-3-nitrilopropionamide	10222-01-2
Microparticle	Proprietary
Petroleum Distillates (BTEX Below Detect)	64742-47-8
Polyacrylamide	57-55-6
Propargyl Alcohol	107-19-7
Propylene Glycol	57-55-6
Quartz	14808-60-7
Sillica, crystalline quartz	7631-86-9
Sodium Chloride	7647-14-5
Sodium Hydroxide	1310-73-2
Sugar	57-50-1
Surfactant	68439-51-0
Suspending agent (solid)	14808-60-7
Tar bases, quinoline derivs, benzyl chloride-quaternized	72480-70-7
Solvent Naphtha, petroleum, heavy aliph	64742-96-7
Soybean Oil, Me ester	67784-80-9
Copolymer of Maleic and Acrylic Acid	52255-49-9
DETA phosphonate	15827-60-8
Hexamethylene Triamine Penta	34690-00-1
Phosphino Carboxylic acid polymer	71050-62-9
Hexamethylene Diamine Tetra	23605-75-5
2-Propenoic acid, polymer with 2 propenamide	9003-06-9
Hexamethylene diamine penta (methylene phosphonic acid)	23605-74-5
Diethylene Glycol	111-46-2
Methenamine	100-97-0
Polyethylene polyamine	68603-67-8
Coco amine	61791-14-8
2-Propyn-1-ol compound with methyloxirane	638172-91-7

OFFICE OF  
 OIL AND GAS  
 NOV 2 2016  
 Department of  
 Environmental Protection

# HUGHES DRILL PAD AS-BUILT PLANS

## ANTERO RESOURCES CORPORATION

West Virginia Coordinate System of 1983  
State Plane Grid North  
Elevations NAVD83  
Established By Survey Grade GPS



Well Table

Prop. Well Gdb Line 21 WVA NAD83 N 23581 304711 WVA NAD83 E 103194 319440 LAT NAD83 39 21524 LOW NAD83 40 82287	Prop. Well Gdb Line 01 WVA NAD83 N 20288 40271 WVA NAD83 E 103194 319440 LAT NAD83 39 21524 LOW NAD83 40 82287	Prop. Well Hughes Line 21 WVA NAD83 N 20288 40271 WVA NAD83 E 103194 319440 LAT NAD83 39 21524 LOW NAD83 40 82287	Prop. Well Hughes Line 01 WVA NAD83 N 20288 40271 WVA NAD83 E 103194 319440 LAT NAD83 39 21524 LOW NAD83 40 82287
Prop. Well DeWaters Line 21 WVA NAD83 N 29410 35220 WVA NAD83 E 103194 319440 LAT NAD83 39 21524 LOW NAD83 40 82287	Prop. Well DeWaters Line 01 WVA NAD83 N 29410 35220 WVA NAD83 E 103194 319440 LAT NAD83 39 21524 LOW NAD83 40 82287	Prop. Well Pickett Line 21 WVA NAD83 N 29410 35220 WVA NAD83 E 103194 319440 LAT NAD83 39 21524 LOW NAD83 40 82287	Prop. Well Pickett Line 01 WVA NAD83 N 29410 35220 WVA NAD83 E 103194 319440 LAT NAD83 39 21524 LOW NAD83 40 82287
Prop. Well McLean Line 21 WVA NAD83 N 29410 35220 WVA NAD83 E 103194 319440 LAT NAD83 39 21524 LOW NAD83 40 82287	Prop. Well McLean Line 01 WVA NAD83 N 29410 35220 WVA NAD83 E 103194 319440 LAT NAD83 39 21524 LOW NAD83 40 82287	As-Built Well Conda Line 21 WVA NAD83 N 29410 35220 WVA NAD83 E 103194 319440 LAT NAD83 39 21524 LOW NAD83 40 82287	As-Built Well Conda Line 01 WVA NAD83 N 29410 35220 WVA NAD83 E 103194 319440 LAT NAD83 39 21524 LOW NAD83 40 82287

**Project Contacts**

**Antero Resources**  
AP# 1706567  
AP# 1706568

Anthony Smith - Construction  
304-859-3405 Off. 304-673-6195 Cell

Roger Dunlap - Project Manager  
304-651-5588

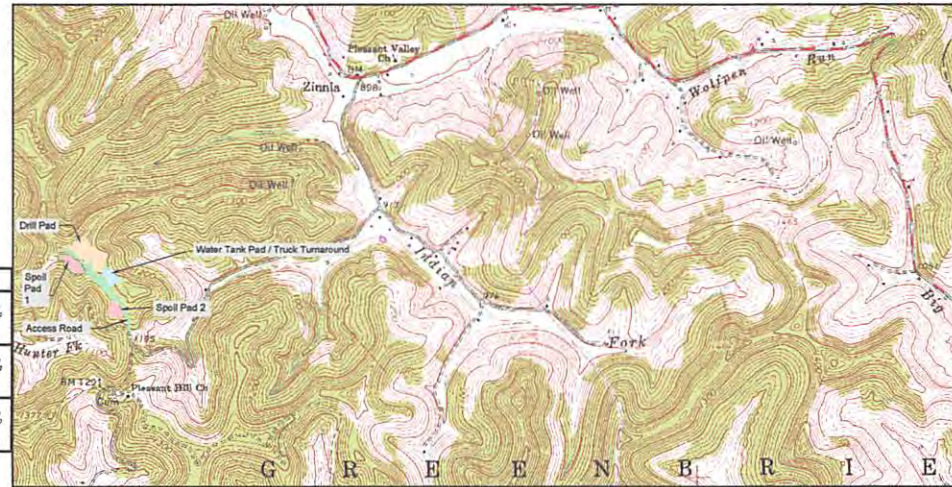
John Kavcak, Engineer  
817-368-1553

Dusty Woods  
817-771-1436

Aaron Kuntzer, Construction Manager  
405-227-8344

Surveyor & Engineer  
Bill Veltzer, P.S., E.I. - Allegheny Surveys Inc.  
304-845-5035 Off. 304-619-4937 Cell

Tom Covathers, P.E., P.S. - Honor Brothers Engineers  
304-624-6445 Office 304-672-5771 Cell



TM 10 - Pct 01  
Jeffery G. & Darlene Burnside  
DB 245, PG 575 (tract 2)  
23 Acres  
(Affected area from As-Built Access Road = 1,508 feet, 3.94 Acres)  
(Affected area from As-Built Drill Pad = 0.21 Acres)  
(Affected area from As-Built Drill Pad Access Road = 18 feet, 0.01 Acres)  
(Affected area from As-Built Water Storage Pad = 0.08 Acres)  
(Affected area from As-Built Spoil Pile = 2.72 Acres)

TM 10 - Pct 01 1  
Jeffery G. & Darlene Burnside  
DB 245, PG 575 (tract 1)  
14 Acres  
(Affected area from As-Built Access Road = 481 feet, 0.84 Acres)  
(Affected area from As-Built Spoil Pile = 1.10 Acres)

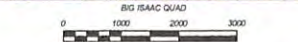
TM 10 - Pct 01 3  
Eric Eleanor Nelson  
DB 281, PG 361 (tract 6)  
25.72 Acres  
(Affected area from As-Built Water Storage Pad = 1.63 Acres)  
(Affected area from As-Built Spoil Pile = 0.63 Acres)

TM 7 - Pct 22  
Peter C. McDonald  
DB 235, PG 578  
28 Acres  
(Affected area from As-Built Drill Pad = 0.20 Acres)

TM 7 - Pct 34  
Eric Eleanor Nelson  
DB 281, PG 361 (tracts 3 & 4)  
47.82 Acres  
(Affected area from As-Built Drill Pad = 3.38 Acres)  
(Affected area from AS-Built Drill Pad Access Road = 139 feet, 0.18 Acres)  
(Affected area from As-Built Access Road = 0.08 Acres)  
(Affected area from As-Built Water Storage Pad = 0.29 Acres)  
(Affected area from As-Built Water Storage Pad Access Road = 0.03 Acres)

DESCRIPTION	LOD AREAS (ACRES)	
	AREA	AS-BUILT
MAIN ACCESS ROAD	4.90	4.84
DRILL PAD	4.19	3.79
DRILL PAD ACCESS ROAD	0.44	0.10
WATER STORAGE PAD/TANKER TRUCK (ON/ANTEROS)	1.77	1.18
WATER STORAGE PAD/TANKER ACCESS ROAD	0.06	0.03
SPOIL PADS	4.18	4.81
TOTAL	15.63	15.96
TOTAL WOODED AREA	13.72	13.72

FLOODPLAIN CONDITIONS	
DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN FLOODPLAIN:	NO
PERMIT NEEDED FROM COUNTY FLOODPLAIN COORDINATOR:	NO
HEC-RAS STUDY COMPLETED:	N/A
FLOODPLAIN SHOWN ON DRAWINGS:	N/A
FIRM MAP NUMBER(S) FOR SITE:	5401C0255C
ACREAGES OF CONSTRUCTION IN FLOODPLAIN:	N/A



SITE LOCATIONS		
STATE PLANE GRID BY WV NORTH ZONE		
CENTROID	LATITUDE	LONGITUDE
Begin Access Road	39 215448	-80 817697
Center of Pad	39 212366	-80 820524
Center of Pad (101W 85-17 E)	39 211102	-80 821571
Center of Water Storage Pad	39 218177	-80 818830
Center of Pad (101W 85-17 E)	39 216537	-80 822925



Design Certification:  
The drawings, construction notes and reference diagrams attached hereto have been prepared in accordance with the West Virginia Code of State Rules, Division of Environmental Protection, Office of Oil and Gas §22-6 & 35-4-21 & 35-CSR-8.



**NO AFFECTED STREAMS OR WETLANDS**

**Well Location Restrictions:**

- All Pad limits comply with the following restrictions:
- 250' from an existing well or developed spring used for human or domestic animals
  - 625' occupied dwelling or barn greater 2500 SF used for poultry or dairy measured from the center of the pad
  - 100' from edge of disturbance to wetlands, perennial streams, natural or artificial lake, pond or reservoir
  - 300' from edge of disturbance to naturally reproducing trout streams
  - 1000' of surface or ground water intake to a public water supply.

As-Built Certification:  
These drawings have been prepared from actual field surveys and reflect the locations and as-built conditions known to exist following construction of this site, to the best of my knowledge. Except as noted, the construction plans were followed, to the best of the Engineer's knowledge and belief.

Note: Pad was designed with a berm around the well pad perimeter and a mountable berm at the access onto the well pad. As built well pad deviates from the design with respect to the berms. These berms will be constructed prior to the commencement of future drilling operations per WVDEP

Note: At the date this as-built drawing was prepared, not all of the wells shown had been drilled.

SHEET INDEX	
COVER SHEET / LOCATION MAP	1
AS-BUILT SITE PLANS	2-3
AS-BUILT ROAD PROFILE	4
RECLAMATION PLANS	5-6

DATE	REVISIONS	Date: 02-20-2014
		Scale: N/A
12.3.2014	ADDED PERIMETER & MOUNTABLE BERM & DETAILS FOR SAME	Designed By: TRC & SCR
11.10.2014	ADDED AP# NUMBERS, RESPOND TO WVDEP COMMENTS	File No: [redacted]
		Page: 1 of 6

MISS Utility of West Virginia  
1-800-245-4848

West Virginia State Law  
(Section XIV: Chapter 24-C)  
Requires that you call two business days before you dig in the state of West Virginia.  
**IT'S THE LAW!!**

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

Allegheny Surveys, Inc.  
172 Thompson Drive  
Bridgeport, WV 26330  
(304) 848-5035

Honor  
Stone Bros. Engineers  
Civil, Consulting Engineering and  
Construction  
100 South Main Street, Suite 1000  
Martinsburg, WV 26150

ANTERO  
RESOURCES  
THIS DOCUMENT  
PREPARED FOR  
ANTERO RESOURCES  
CORPORATION

AS-BUILT COVER SHEET / LOCATION MAP  
HUGHES  
DRILL PAD SITE ALT-3  
GREENBERG DISTRICT  
DODDRIERGE COUNTY, WV

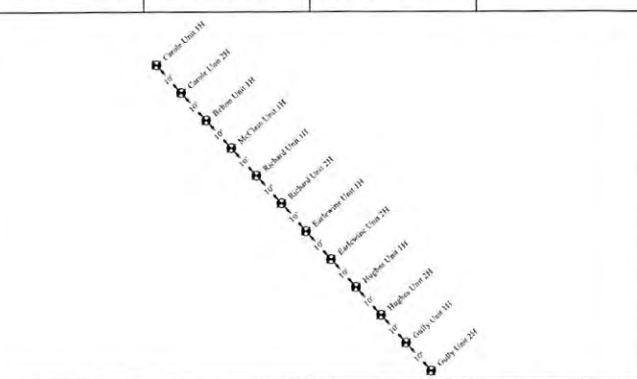
**Hugh**  
As-Built/  
Antero Re  
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Gree  
Latitud  
Longitu  
Buckeye

**WEST VIRGINIA COUNTY MAP**



★ PROJECT LOCATION

Site Entrance	Center of Well Pad	Center of Tank Pad
WV-N NAD 83 N: 262555.88 WV-N NAD 83 E: 1651827.38 WV-N NAD 27 N: 262519.39 WV-N NAD 27 E: 1683268.10 Lat. NAD 83: 39.21544800 Lon. NAD 83: -80.61076900 Lat. NAD 27: 39.21536022 Lon. NAD 27: -80.61787602 UTM 17 NAD 83 N: 4340755.14 UTM 17 NAD 83 E: 533003.71	WV-N NAD 83 N: 264003.56 WV-N NAD 83 E: 1651044.32 WV-N NAD 27 N: 263967.08 WV-N NAD 27 E: 1682485.05 Lat. NAD 83: 39.21939561 Lon. NAD 83: -80.62052424 Lat. NAD 27: 39.21030793 Lon. NAD 27: -80.62070316 UTM 17 NAD 83 N: 4341192.20 UTM 17 NAD 83 E: 532757.80	WV-N NAD 83 N: 263609.33 WV-N NAD 83 E: 1651430.76 WV-N NAD 27 N: 263572.84 WV-N NAD 27 E: 1682871.49 Lat. NAD 83: 39.21832854 Lon. NAD 83: -80.61914302 Lat. NAD 27: 39.21823881 Lon. NAD 27: -80.61923201 UTM 17 NAD 83 N: 4341014.66 UTM 17 NAD 83 E: 532877.53



Well Table			
<b>Gully Unit 2H</b> WV-N NAD 83 N: 263951.56 WV-N NAD 83 E: 1651091.19 WV-N NAD 27 N: 263915.09 WV-N NAD 27 E: 1682513.92 Lat. NAD 83: 39.21925447 Lon. NAD 83: -80.62035553 Lat. NAD 27: 39.21916670 Lon. NAD 27: -80.62053346 UTM 17 NAD 83 (m) N: 4341178.60 UTM 17 NAD 83 (m) E: 532772.34	<b>Gully Unit 3H</b> WV-N NAD 83 N: 263958.99 WV-N NAD 83 E: 1651084.50 WV-N NAD 27 N: 263922.52 WV-N NAD 27 E: 1682525.23 Lat. NAD 83: 39.21925447 Lon. NAD 83: -80.62035553 Lat. NAD 27: 39.21918695 Lon. NAD 27: -80.62055941 UTM 17 NAD 83 (m) N: 4341178.83 UTM 17 NAD 83 (m) E: 532770.27	<b>Hughes Unit 2H</b> WV-N NAD 83 N: 263566.42 WV-N NAD 83 E: 1651077.80 WV-N NAD 27 N: 263929.94 WV-N NAD 27 E: 1682518.53 Lat. NAD 83: 39.21925440 Lon. NAD 83: -80.62049445 Lat. NAD 27: 39.21920711 Lon. NAD 27: -80.62058337 UTM 17 NAD 83 (m) N: 4341181.06 UTM 17 NAD 83 (m) E: 532768.19	<b>Hughes Unit 3H</b> WV-N NAD 83 N: 263973.88 WV-N NAD 83 E: 1651071.10 WV-N NAD 27 N: 263937.37 WV-N NAD 27 E: 1682511.84 Lat. NAD 83: 39.21931496 Lon. NAD 83: -80.62042460 Lat. NAD 27: 39.21922728 Lon. NAD 27: -80.62060733 UTM 17 NAD 83 (m) N: 4341183.28 UTM 17 NAD 83 (m) E: 532766.11
<b>Richard Unit 2H</b> WV-N NAD 83 N: 263996.13 WV-N NAD 83 E: 1651051.02 WV-N NAD 27 N: 263959.60 WV-N NAD 27 E: 1682491.75 Lat. NAD 83: 39.21937544 Lon. NAD 83: -80.62050028 Lat. NAD 27: 39.21928776 Lon. NAD 27: -80.62097920 UTM 17 NAD 83 (m) N: 4341189.97 UTM 17 NAD 83 (m) E: 532759.88	<b>Richard Unit 3H</b> WV-N NAD 83 N: 264003.56 WV-N NAD 83 E: 1651044.32 WV-N NAD 27 N: 263967.08 WV-N NAD 27 E: 1682485.05 Lat. NAD 83: 39.21939561 Lon. NAD 83: -80.62052424 Lat. NAD 27: 39.21930793 Lon. NAD 27: -80.62070316 UTM 17 NAD 83 (m) N: 4341192.20 UTM 17 NAD 83 (m) E: 532757.80	<b>Carole Unit 2H</b> WV-N NAD 83 N: 264026.35 WV-N NAD 83 E: 1651022.97 WV-N NAD 27 N: 263989.88 WV-N NAD 27 E: 1682463.70 Lat. NAD 83: 39.21945746 Lon. NAD 83: -80.62060961 Lat. NAD 27: 39.21936978 Lon. NAD 27: -80.62077953 UTM 17 NAD 83 (m) N: 4341199.04 UTM 17 NAD 83 (m) E: 532751.18	<b>Carole Unit 3H</b> WV-N NAD 83 N: 264033.57 WV-N NAD 83 E: 1651017.11 WV-N NAD 27 N: 263997.10 WV-N NAD 27 E: 1682457.84 Lat. NAD 83: 39.21947707 Lon. NAD 83: -80.62062161 Lat. NAD 27: 39.21935940 Lon. NAD 27: -80.62090552 UTM 17 NAD 83 (m) N: 4341201.21 UTM 17 NAD 83 (m) E: 532749.36
<b>Belton Unit 3H</b> WV-N NAD 83 N: 264018.76 WV-N NAD 83 E: 1651030.16 WV-N NAD 27 N: 263982.28 WV-N NAD 27 E: 1682470.89 Lat. NAD 83: 39.21943685 Lon. NAD 83: -80.62057438 Lat. NAD 27: 39.21934917 Lon. NAD 27: -80.62075380 UTM 17 NAD 83 (m) N: 4341196.76 UTM 17 NAD 83 (m) E: 532753.41	<b>McClain Unit 3H</b> WV-N NAD 83 N: 264010.99 WV-N NAD 83 E: 1651037.63 WV-N NAD 27 N: 263974.51 WV-N NAD 27 E: 1682474.36 Lat. NAD 83: 39.21941577 Lon. NAD 83: -80.62054818 Lat. NAD 27: 39.21932809 Lon. NAD 27: -80.62072711 UTM 17 NAD 83 (m) N: 4341194.43 UTM 17 NAD 83 (m) E: 532755.72		



Site Locations (NAD 27)		
Structure	Latitude (DD)	Longitude
Site Entrance	39.21316697	-80.8439
Center of Well Pad	39.21713953	-80.8428
Center of Tank Pad	39.21592361	-80.8410

**Project Contacts**

**Antero Resources**  
Robert Wirks - Project Coordinator  
304-842-4100 O/E. 304-627-7405 Cell  
Aaron Kuntzer - Construction Manager  
304-842-4193 O/E. 304-641-8242 Cell  
Eli Wagener - Environmental  
304-842-4068 O/E. 304-476-9770 Cell  
Jon McEvers - Operations Superintendent  
304-842-4739 O/E. 303-808-2423 Cell

**Survey and Engineer**  
Kenneth Kelly  
304-333-6985 O/E  
John P. See  
304-442-0220 O/E  
Zackary Summerfield  
304-333-6987 O/E

**Geotechnical:**  
A geotechnical investigation was not provided for the purpose of this as-built survey.

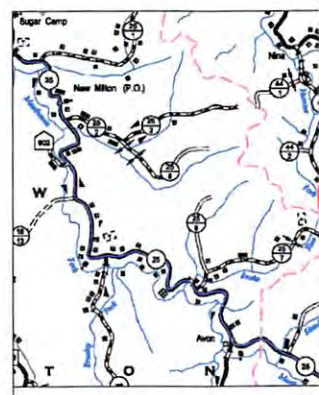
**Environmental:**  
Wetland Delineations were not provided for the purpose of this as-built survey.

**MISS UTILITY OF WEST VIRGINIA**  
1-800-245-4848  
West Virginia State Law Section XIV, Chapter 24C requires that you call two business days before you dig in the state of West Virginia. **IT'S THE LAW**

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

Floodplain Conditions	
Do site construction activities take place in a floodplain?	NO
Permit needed from county floodplain coordinator?	NO
Flood Hazard Zone	X
HEC-RAS Study completed?	N/A
Floodplain shown on drawings?	N/A
FIRM Map Number(s) for site	54070; 02350
Acreages of construction in floodplain:	N/A

**Approach Routes:**  
From US Rt 50, Turn onto Co Rt 50/16 (Snowbird Rd, near Smithburg, WV). Follow Co Rt 50/16 for 1.9 mi. Turn Left onto WV Rt 18 South. Follow WV Rt 18 South for 3.1 mi. Turn Left onto Co Rt 25 (Meathouse Fork). Follow Co Rt 25 for 5.7 mi. Turn Left onto Co Rt 25/11 (Double Camp Rd). Follow Co Rt 25/11 for 1.8 mi. Turn Left onto Co Rt 44. Follow Co Rt 44 for 0.3 mi. The site entrance will be on the Right (East) side of the road.



**Received**  
**Office of Oil & Gas**  
**NOV 28 2016**

**02/25/2017**

# es Well Site

Reclamation Plan  
 Resources Corporation  
 Greenbrier County  
 Greenbrier District  
 39.21939600°  
 -80.62052400°  
 Buckeye Creek Watershed

**Pertinent Site Information**  
 Hughes Well Site  
 Emergency Number: 304-281-7407  
 Greenbrier District, Doddridge County, WV  
 Watershed: Buckeye Creek Watershed  
 Antero Resources Emergency Number: 800-878-1373



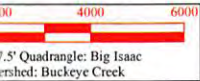
WV State Plane Coordinate System  
 North Zone, NAD 83  
 Elevations Based on NAVD83  
 Established By Survey Grade GPS  
 and OPUS Post-Processing

**Property Owner Information - Hughes Well Site**  
 New Milton & Greenbrier District - Doddridge County

Owner	TM-Parcel	Well Pad	Tank Pad	Access Road	Topsoil/Excess	Total Disturbed
Jeffery G & Darlene Burnside	10-1	0.21	0.08	3.95	2.79	7.03
Jeffery G & Darlene Burnside	10-1.1	0.00	0.00	0.34	1.10	1.94
Eric Heizer Nelson	10-1.3	0.00	1.83	0.00	0.93	2.76
Peter C McDonald	7-22	0.20	0.00	0.00	0.00	0.20
Eric Heizer Nelson	7-34	3.38	0.28	0.27	0.00	3.93
<b>Site Totals (Ac)</b>		<b>3.79</b>	<b>2.19</b>	<b>5.06</b>	<b>4.82</b>	<b>15.86</b>

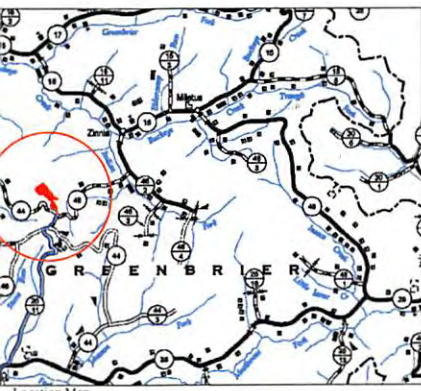
**Disturbed Area**

Well Pad Construction	3.79 Ac
Tank Pad Construction	2.19 Ac
Access Road Construction	5.06 Ac
Topsoil / Excess Material	4.82 Ac
<b>Total Disturbed Area</b>	<b>15.90 Ac</b>



**Site Locations (NAD 83)**

Structure	Latitude (DD)	Longitude (DD)
Site Entrance	39.21544800	-80.61769700
Center of Well Pad	39.21939600	-80.62052400
Center of Tank Pad	39.21817700	-80.61893000



**Well Location Restrictions**  
 All Pad and Fracture Pit construction complies with the following restrictions.  
 \*250' from an existing well or developed spring used for human or domestic animals.  
 \*625' from an occupied dwelling or barn greater than 2,500 SF used for poultry or dairy measured from the center of the pad.  
 \*100' from the edge of disturbance to wetlands, perennial streams, natural or artificial lake, pond or reservoir.  
 \*300' from the edge of disturbance to a naturally reproducing trout stream.  
 \*1,000' of a surface or ground water intake to a public water supply.  
 Well Location Restrictions of WV Code 22-6A-12)



Sheet	Description
1	Cover Sheet
N1-N3	Site Notes
2	Site Overview
3	Access Road Profiles
D1-D2	Erosion and Sediment Control Details
P1	Pad Reclamation Details
S1-S3	Site Reclamation Plan

**As-Built Certification**  
 This as-built certification certifies that the gas well drilling pad was constructed in reasonable close conformance with the design drawings. It is recommended that gas well drilling pad is included in the existing comprehensive maintenance and inspection program for gas well drilling pads or that a comprehensive maintenance and inspection program be developed to monitor the pads condition to insure the continued safe operation.

John P. See RPE: 6/51

Date: 11/16/2016

Revision  
 Date



THIS DOCUMENT PREPARED FOR ANTERO RESOURCES CORPORATION



**Cover Sheet**  
 Hughes Well Site  
 Greenbrier District  
 Doddridge County, WV

Date: 11/11/2016  
 Scale: As Shown  
 Designed By: BC

02/25/2017

*Julia Baker*  
 11/23/16