



west virginia department of environmental protection

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

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

Wednesday, June 07, 2017
WELL WORK PERMIT
Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION (A)
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit approval for CARSE UNIT 2H
47-095-02444-00-00

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: CARSE UNIT 2H
Farm Name: RYMER, JOSEPH R. JR.
U.S. WELL NUMBER: 47-095-02444-00-00
Horizontal 6A / New Drill
Date Issued: 6/7/2017

Promoting a healthy environment.

06/09/2017

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

1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.
2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than one hundred (100) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
7. 24 hours prior to the initiation of the completion process the operator shall notify the Chief or his designee.
8. During the completion process the operator shall monitor annular pressures and report any anomaly noticed to the chief or his designee immediately.
9. 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.
10. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

PERMIT CONDITIONS

11. 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.

WW-6B
(04/15)

API NO. 47-095 - 02444 HGA
OPERATOR WELL NO. Carse Unit 2H
Well Pad Name: Rush Fork Pad

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

1) Well Operator: Antero Resources Corporation 494507062 095 - Tyler Meade Middlebourne 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Carse Unit 2H Well Pad Name: Rush Fork Pad

3) Farm Name/Surface Owner: Joseph R. Rymer Jr Public Road Access: Middlebourne-Wick (CR 7)

4) Elevation, current ground: 1000' Elevation, proposed post-construction: 986'

5) Well Type (a) Gas Oil Underground Storage
Other

(b) If Gas Shallow Deep
Horizontal

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s): 4-18-17
Marcellus Shale: 6700' TVD, Anticipated Thickness- 55 feet, Associated Pressure- 2800#

8) Proposed Total Vertical Depth: 6700' TVD ✓

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 19900' MD ✓

11) Proposed Horizontal Leg Length: 12356' ✓

12) Approximate Fresh Water Strata Depths: 229' ✓

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

14) Approximate Saltwater Depths: 1499' ✓

15) Approximate Coal Seam Depths: 521' ✓

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

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

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

WW-6B
(04/15)

API NO. 47-095 - 02444 HWA
 OPERATOR WELL NO. Case Unit 2H
 Well Pad Name: Rush Fork Pad

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#	80'	80'	CTS, 77 Cu. Ft.
Fresh Water	13-3/8"	New	J-55/H-40	54.5#/48#	300'	300'	CTS, 417 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	2500'	2500'	CTS, 1018 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	20#	19900'	19900'	5064 Cu. Ft
Tubing	2-3/8"	New	N-80	4.7#		7100'	
Liners							

*PH
4-18-17*

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-HP02 & 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			

WW-6B
(10/14)

API NO. 47-095 - 02444
OPERATOR WELL NO. Case Unit 2H
Well Pad Name: Rush Fork Pad

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

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

DMH
4-18-17

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): 19.73 acres

22) Area to be disturbed for well pad only, less access road (acres): 7.78 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.



No wells exist within a 500' radius of the wellbore that are reasonably expected to penetrate a depth that could be within the range of fracture propagation; therefore no additional details (perforated formation, producing zones etc.) are required as outlined in 35CSR8-5.11

Carse Unit 2H

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Office of Oil and Gas
MAR 24 2017
WV Department of
Environmental Protection



Carse Unit 2H - AOR



REMARKS
No wells of interest within the AOR

March 14, 2017

06/09/2017

WW-9
(4/16)

API Number 47 - 095 - 02444
Operator's Well No. Cause 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) Outlet Middle Island Creek Quadrangle Middlebourne 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)

*DMA
4-18-17*

Will closed loop system be used? If so, describe: Yes, fluids stored in tanks, cuttings removed offsite and taken to landfill.

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 or Synthetic Based Mud

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

Additives to be used in drilling medium? Please See Attachment

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Drill cuttings 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 *Shawn Donovan*

Company Official (Typed Name) Shawn Donovan

Company Official Title Environmental Specialist III

Subscribed and sworn before me this 22 day of March, 20 17

Shawn Donovan Notary Public

My commission expires 7/8/2020



06/09/2017

Antero Resources Corporation

Proposed Revegetation Treatment: Acres Disturbed 19.73 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

Access Road "A" 1395' (5.61 acres) + Staging Area (1.49 acres) + Well Pad (7.78 acres) + Excess/Topsoil Material Stockpiles (4.85 acres) = 19.73 Acres

Seed Mixtures

Temporary

Permanent

Seed Type	lbs/acre
Annual Ryegrass	40
Field Bromegrass	40

Seed Type	lbs/acre
Crownvetch	10-15
Tall Fescue	30

See attached Table IV-3 for additional seed type (Rush Fork Pad Design: Page 24)

See attached Table IV-4A for additional seed type (Rush Fork Pad Design Page 24)

*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: [Signature]

Comments: _____

Title: Oil & Gas Inspector Date: 9-18-17

Field Reviewed? Yes No

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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MAR 24 2017

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

Presented
Office of Oil and Gas

MAR 24 2017

WV Department of
Environmental Protection 06/09/2017



911 Address
8730 Wick Rd
Middlebourne, WV 26148

Well Site Safety Plan

Antero Resources

Well Name: Robert Lee Unit 1H-3H, Winebrenner Unit 1H-3H, Wilcox Unit 1H-2H, Carse Unit 1H-3H, Gauge Unit 1H-3H

Pad Location: RUSH FORK PAD
 Tyler County/Meade District

GPS Coordinates:

Entrance - Lat 39°24'48.5814"/Long -80°58'13.2672" (NAD83)

Pad Center - Lat 39°25'0.5658"/Long -80°58'10.0452" (NAD83)

Dm H
4-18-17

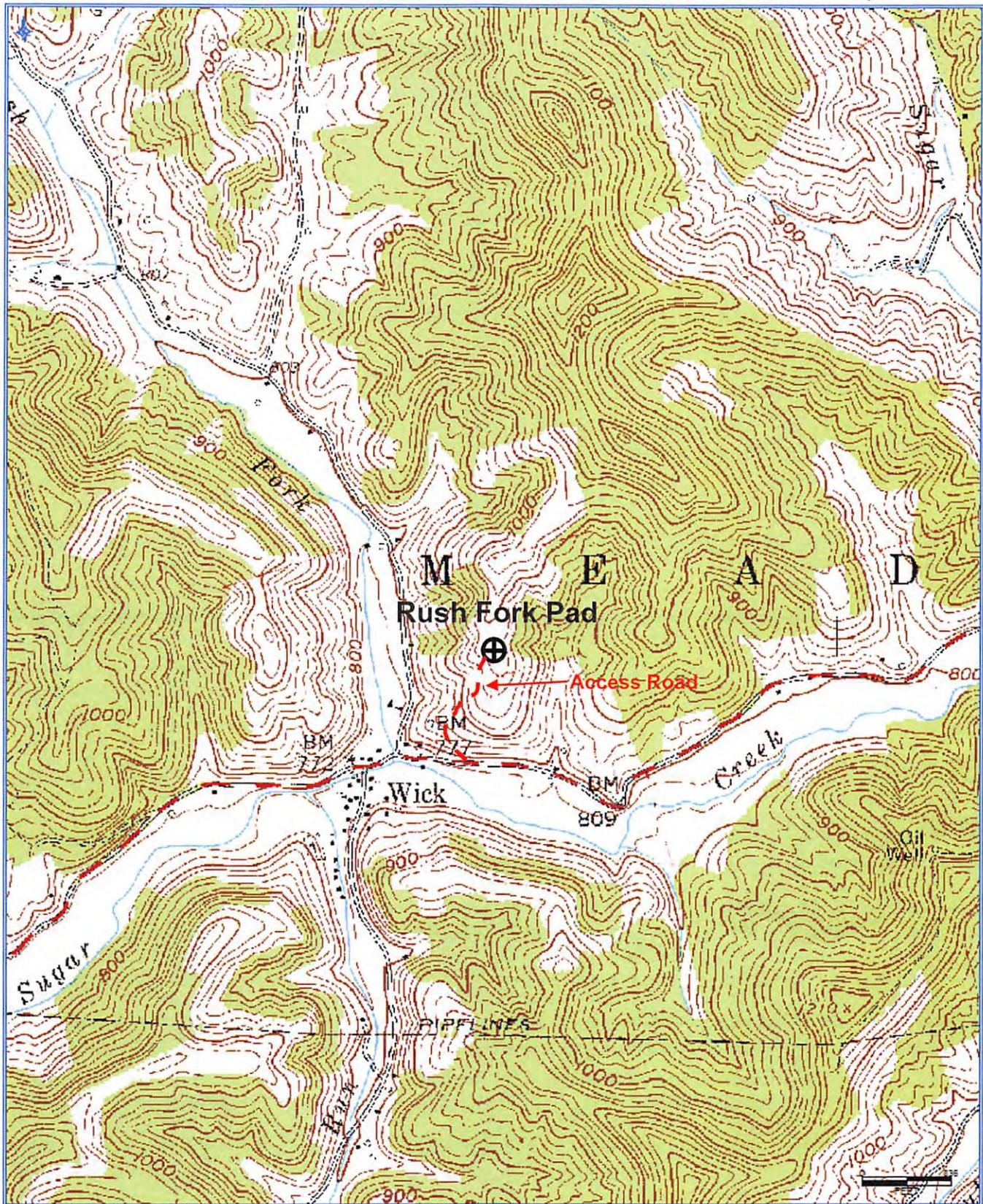
Driving Directions:

From Intersection of I79 and HWY 50: Head west on US-50W for 28.7 miles. Turn right onto WV-18N for 0.6 miles. Turn left onto Davis St/Old U.S. 50 W for 0.4 miles. Turn right onto WV-18 N/Sistersville Pike for 12.2 miles. Turn left onto WV-74S for 3.7 miles. Turn right onto Stull Hill Rd for 1 mile. Continue onto Big Shank Rd for 0.8 miles. Continue onto Big Sanka Rd for 1.6 miles. Continue onto Bearsville Rd for 1.8 miles. Turn left onto Middlebourne-Wick/Wick Rd for 2.6 miles. Access road will be on your right.

Alternate Route:

From the Volunteer Fire Department in Middlebourne: Head southwest on WV-18S/Main St toward Wilcox Ave for 0.3 miles. Turn right onto Bridgeway Rd for 0.1 miles. Turn left onto Middlebourne-Wick/Wick Rd for 2 miles. Turn left onto Middlebourne-Wick for 6.6 miles. Access road will be on your right.

EMERGENCY (24 HOUR) CONTACT 1-800-878-1373



Antero Resources Corporation
Appalachian Basin
Carse Unit 2H
Tyler County

Quadrangle: Middlebourne
Watershed: Outlet Middle Island Creek
District: Meade
Date: 3-14-2017

06/09/2017

LATITUDE 39°27'30" 3,190'

LATITUDE 39°25'00"

LONGITUDE 80°55'00"

11,734' TO BOTTOM HOLE

15,065'

LONGITUDE 80°57'30"

COUNTY NAME

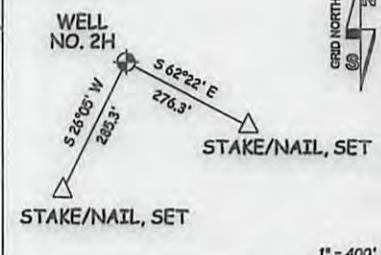
PERMIT

Antero Resources Corporation
Well No. Carse Unit 2H

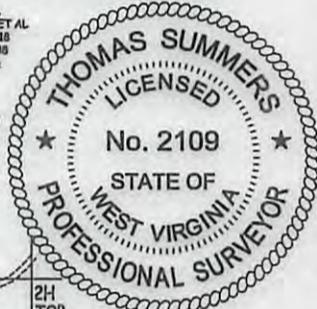
NOTES:
 WELL 2H TOP HOLE INFORMATION:
 N: 337,376ft E: 1,584,815ft
 LAT: 39°25'01.10" LON: 80°58'10.65"
 BOTTOM HOLE INFORMATION:
 N: 325,475ft E: 1,588,126ft
 LAT: 39°23'04.02" LON: 80°57'26.00"
 WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE 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: 4,363,059m E: 502,629m
 BOTTOM HOLE INFORMATION:
 N: 4,359,450m E: 503,699m

REFERENCES

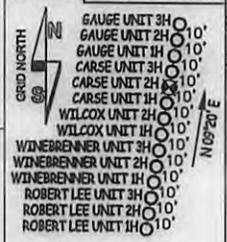


NOTE
 NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.

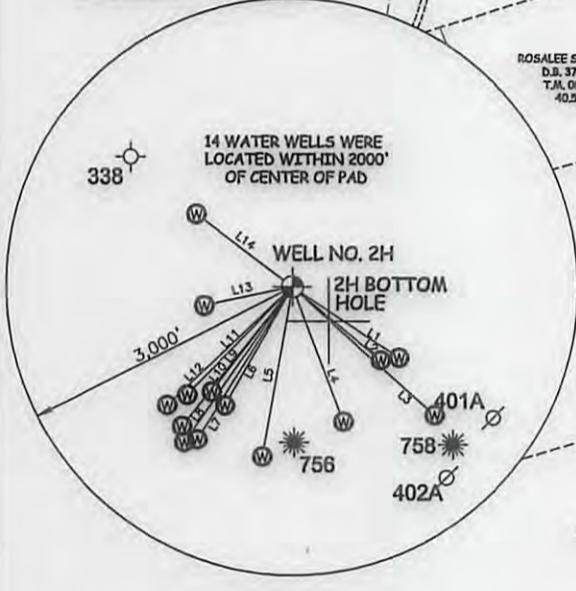


(NAD) 27 (UTM) ZONE 17 COORDS:
 WELL 2H TOP HOLE INFORMATION:
 N: 14,313,757ft E: 1,648,995ft
 POINT OF ENTRY INFORMATION:
 N: 14,313,542ft E: 1,648,328ft
 BOTTOM HOLE INFORMATION:
 N: 14,301,917ft E: 1,652,504ft

PAD LAYOUT



LINE	BEARING	DISTANCE
L1	S 58°56' E	1337.0'
L2	S 50°46' E	1198.0'
L3	S 48°14' E	1093.3'
L4	S 20°46' E	1496.0'
L5	S 10°14' W	1788.2'
L6	S 29°59' W	1421.0'
L7	S 32°14' W	1078.9'
L8	S 35°09' W	1078.9'
L9	S 37°56' W	1381.3'
L10	S 39°43' W	1658.1'
L11	S 44°37' W	1574.9'
L12	S 48°58' W	1691.2'
L13	S 78°16' W	945.7'
L14	N 53°07' W	1259.7'



47 - 095 - 02444 H6A
 STATE COUNTY PERMIT

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



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

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

JOB # 17-022WA
 DRAWING # CARSE2H
 SCALE 1" = 1000'
 MINIMUM DEGREE OF ACCURACY SUBMETER
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS
 STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS

LEGEND
 - - - - - Surface Owner Boundary Lines +/-
 - - - - - Interior Surface Tracts +/-
 - - - - - Existing Fence
 ⊕ Found monument, as noted
 THOMAS SUMMERS P.S. 2109
 DATE 03/20/17
 OPERATOR'S WELL# CARSE UNIT #2H

WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL
 (IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X
 LOCATION: ELEVATION 1,000' - ORIGINAL 986' - PROPOSED WATERSHED OUTLET MIDDLE ISLAND CREEK
 QUADRANGLE MIDDLEBOURNE 7.5' DISTRICT MEADE COUNTY TYLER
 SURFACE OWNER JOSEPH R. RYMER JR. ACREAGE 44.33 ACRES +/-
 OIL & GAS ROYALTY OWNER HOWARD HARCHA III, BRENDA MAYS, KERR-McGEE OIL & GAS ONSHORE LP, FORREST LEASE ACREAGE 44.33 AC +/- 3.21 AC +/- 23.97 AC +/- 14.80 AC +/-
 MILLER-KENNETH JONES, CARL JACK WILCOX, ALLEN SMITH, JOELYNN FAMILY PRESERVATION TRUST, JOELYNN FAMILY PRESERVATION TRUST 65.5 AC +/- 129.86 AC +/- 149.18 AC +/- 41.89 AC +/- 73.49 AC +/-
 PROPOSED WORK: DRILL X CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE X
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION X OTHER PHYSICAL CHANGE IN WELL (SPECIFY) PLUG & ABANDON CLEAN OUT & REPLUG
 TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,700' TVD 19,900' MD
 WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM
 ADDRESS 1615 WYNKOOP ST. ADDRESS 5400 D BIG TYLER ROAD
 FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

DANIEL D. LEMASTERS
 D.B. 254 PG. 151
 T.M. 11 PAR. 05
 62 AC. ±

JOHN TANCZYK
 D.B. 251 PG. 390
 T.M. 11 PAR. 07.1
 97.19 AC. ±

LESTER WAIDE
 W.B. 32 PG. 303
 T.M. 11 PAR. 26
 4106 AC. ±

RONALD P. HAMILTON
 D.B. 352 PG. 524
 T.M. 11 PAR. 25
 7179 AC. ±

ALLEN SMITH LEASE

KARLHEINZ H. PAUL
 D.B. 285 PG. 644
 T.M. 11 PAR. 07
 5159 AC. ±

JARRETT W. SHEPHERD
 D.B. 379 PG. 494
 T.M. 11 PAR. 19
 8314 AC. ±

JOELYNN FAMILY PRESERVATION TRUST LEASE

TERRY L. SNIDER
 D.B. 349 PG. 116
 T.M. 11 PAR. 20
 4189 AC. ±

JOELYNN FAMILY PRESERVATION TRUST LEASE

TERRY L. SNIDER
 D.B. 358 PG. 317
 T.M. 11 PAR. 21
 7349 AC. ±

RONALD P. HAMILTON
 D.B. 251 PG. 206
 T.M. 11 PAR. 24
 64 AC. ±

TERRY L. SNIDER
 T.M. 11 PAR. 20.1
 8 AC. ±

RONALD P. HAMILTON
 D.B. 322 PG. 735
 T.M. 11 PAR. 22
 6258 AC. ±

06/09/2017

WW-6A1

Operator's Well Number Carse 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:

Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<u>Howard Harcha III Lease</u>			
Howard H. Harcha III	Antero Resources Corporation	1/8+	486/689
<u>James D. White Lease</u>			
James D. White	Antero Resources Corporation	1/8+	431/560
<u>Brenda Mays Lease</u>			
Brenda Sue Mays	Antero Resources Corporation	1/8+	483/253
<u>Kerr-McGee Oil & Gas Onshore LP Lease</u>			
Kerr-McGee Oil & Gas Onshore LP	Antero Resources Corporation	1/8+	502/268
<u>Forrest Miller Lease</u>			
Forrest Miller	Antero Resources Appalachian Corporation	1/8+	417/80
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Kenneth Jones Lease</u>			
Kenneth Jones	Antero Resources Corporation	1/8+	458/486
<u>Carl Jack Wilcox Lease</u>			
Carl Jack Wilcox	Antero Resources Appalachian Corporation	1/8+	404/396
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Allen Smith Lease</u>			
Allen Smith	Antero Resources Corporation	1/8+	546/568
<u>Joelynn Family Preservation Trust Lease 11-20</u>			
Joelynn Family Preservation Trust	Antero Resources Corporation	1/8+	483/286

*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.

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Office of Oil and Gas
MAR 24 2017
WV Department of
Environmental Protection

06/09/2017

WW-6A1
(5/13)

Operator's Well No. Carse 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>Joelynn Family Preservation Trust Lease</u>	Joelynn Family Preservation Trust	Antero Resources Corporation	1/8+	483/286

*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: Senior VP - Production

Office of Oil and Gas
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 MAR 24 2017
 WV Department of
 Environmental Protection

FORM WW-6A1
EXHIBIT 1

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.wvscos.com
E-mail: business@wvscos.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: 6/26/2008
- 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) 367-7310
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-1

Issued by the Office of the Secretary of State

WV011 - 04/16/2013 Website: www.kanawhaonline.com

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Office of Oil and Gas

Revised 4/13
MAR 24 2017

WV Department of
Environmental Protection



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

March 22, 2017

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

RE: Carse Unit 2H
Quadrangle: Middlebourne 7.5'
Tyler County/Meade District, West Virginia

Mr. Martin:

Antero Resources Corporation (Antero) is submitting the following application for a new well work permit for the Carse 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 Carse 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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Environmental Protection

06/09/2017

WW-PN
(11-18-2015)

**Horizontal Natural Gas Well Work Permit
Application Notice By Publication**

Notice is hereby given:

Pursuant to West Virginia Code 22-6A-10(e) prior to filing an application for a permit for a horizontal well the applicant shall publish in the county in which the well is located or is proposed to be located a Class II legal advertisement.

Paper: Tyler Star News

Public Notice Date: 3/15/2017 and 3/22/2017

The following applicant intends to apply for a horizontal natural well work permit which disturbs three acres or more of surface excluding pipelines, gathering lines and roads or utilizes more than two hundred ten thousand gallons of water in any thirty day period.

Applicant: Antero Resources Corporation **Well Number:** Carse Unit 2H

Address: 1615 Wynkoop St. Denver, CO 80202

Business Conducted: Natural gas production.

Location –

State:	<u>West Virginia</u>	County:	<u>Tyler</u>
District:	<u>Meade</u>	Quadrangle:	<u>Middlebourne 7.5'</u>
UTM Coordinate NAD83 Northing:	<u>4363059m</u>		
UTM coordinate NAD83 Easting:	<u>502629m</u>		
Watershed:	<u>Outlet Middle Island Creek</u>		

Coordinate Conversion:

To convert the coordinates above into longitude and latitude, visit: http://tagis.dep.wv.gov/convert/llutm_conus.php

Electronic notification:

To receive an email when applications have been received or issued by the Office of Oil and Gas, visit <http://www.dep.wv.gov/insidedep/Pages/DEPMailingLists.aspx> to sign up.

Reviewing Applications:

Copies of the proposed permit application may be reviewed at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE Charleston, WV 25304 (304-926-0450). Full copies or scans of the proposed permit application will cost \$15, whether mailed or obtained at DEP headquarters. Copies may be requested by calling the office or by sending an email to DEP.comments@wv.gov.

Submitting Comments:

Comments may be submitted online at <https://apps.dep.wv.gov/oog/comments/comments.cfm>, or by letter to Permit Review, Office of Oil and Gas, 601 57th Street, SE Charleston, WV 25304. Please reference the county, well number, and operator when using this option.

Regardless of format for comment submissions, they must be received no later than thirty days after the permit application is received by the Office of Oil and Gas.

For information related to horizontal drilling visit: www.dep.wv.gov/oil-and-gas/pages/default.aspx

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MAR 24 2017
WV Department of
Environmental Protection

06/09/2017

**PROOF OF CLASS II LEGAL ADVERTISEMENT,
PURSUANT TO WV CODE SECTION 22-6A-10(e)**

TYLER STAR NEWS

**PUBLIC NOTICE OF AP-
PLICATION FOR NATU-
RAL GAS HORIZONTAL
WELL DRILLING PERMIT**
pursuant to West Virginia
Code Section 22-6A-10(e).

Antero Resources Corpora-
tion, 1615 Wynkoop Street,
Denver, CO 80202, is ap-
plying for a permit for a nat-
ural gas horizontal well,
Carse Unit 2H, located at
approximately UTM NAD
83 Easting 502629.23m,
UTM NAD 83 Northing
4363034.09m in Outlet
Middle Island Creek Water-
shed, Middlebourne 7.5'
Quadrangle, Meade Dis-
trict, Tyler County, WV
which disturbs three acres
or more of surface includ-
ing pipelines, gathering
lines and roads or utilizes
more than two hundred ten
thousand gallons of water
in any thirty day period. To
convert the coordinates
above into longitude and
latitude, visit:
[http://tags.dep.wv.gov/con-
vert/utm_conus.php](http://tags.dep.wv.gov/con-
vert/utm_conus.php). To
receive an email when ap-
plications have been re-
ceived or issued by the
Office of Oil and Gas, visit
[http://www.dep.wv.gov/insi-
dedep/Pages/DEPMailing
Lists.aspx](http://www.dep.wv.gov/insi-
dedep/Pages/DEPMailing
Lists.aspx) to sign up.

Any interested person may
submit written comments or
request a copy of the pro-
posed permit application.
Regardless of format for
comment submissions,
they must be received no
later than thirty days after
the permit application is re-
ceived by the Office of Oil
and Gas.

Comments may be submit-
ted online at
[https://apps.dep.wv.gov/o-
cg/comments/comments.c-
fm](https://apps.dep.wv.gov/o-
cg/comments/comments.c-
fm), or by letter to Permit
Review, Office of Oil and
Gas, 601 57th Street, SE
Charleston, WV 25304.
Emailed or written com-
ments must reference the
county, well number, and
operator and be received
within 30 days of the date
of the last publication.
Copies of the proposed
permit application may be
reviewed at the WV Depart-
ment of Environmental Pro-
tection headquarters,
located at 601 57th Street,
SE, Charleston, WV 25304
(304-926-0450). Full
copies or scans of the pro-
posed permit application
will cost \$15.00, whether
mailed or obtained at DEP
headquarters.

For information related to
horizontal drilling, and all
horizontal well applications
filed in this state, visit:
[www.dep.wv.gov/oil-and-g-
as/Horizontal-Permits/Pag-
es/default.aspx](http://www.dep.wv.gov/oil-and-g-
as/Horizontal-Permits/Pag-
es/default.aspx)
Antero Resources
Corporation
TSN 2576 3/15,22

Sistersville, WV March 22, 2017

State of West Virginia, County of Tyler:

Personally appeared before the undersigned, a Notary Public,

Brian Clutter who, being duly sworn,

states that he is the manager of the Tyler Star News, a weekly
newspaper of general circulation, published at Sistersville,

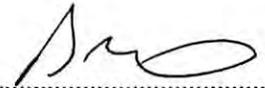
County of Tyler, State of West Virginia, and that a copy of the

notice attached hereto was published for.....².....successive

weeks in the Tyler Star News, beginning on the¹⁵.....day

of March, 2017 and ending on the.....²².....day

of March, 2017.



.....
Manager, Tyler Star News

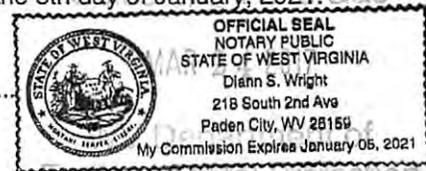
Subscribed and sworn to before me, a Notary Public of said
County, on this²²..... day of March, 2017.



..... Notary Public

My commission expires on the 5th day of January, 2021

Printers Fee.....



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: Antero Resources Corporation
By: Kevin Kilstrom
Its: Senior VP - Production
Telephone: 303-357-7310

Address: 1615 Wynkoop Street
Denver, CO 80202
Facsimile: 303-357-7315
Email: shjohnson@anteroresources.com



Subscribed and sworn before me this 21 day of March 2017

[Signature] Notary Public

My Commission Expires 7/8/2020

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.

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WV Department of
Environmental Protection

06/09/2017

**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: 3/22/2017 **Date Permit Application Filed:** 3/22/2017

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: Joseph R. Rymer, Jr
Address: 3326 Rush Fork Road
Middlebourne, WV 26149

Name: _____
Address: _____

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

Name: Joseph R. Rymer Jr.
Address: 3326 Rush Fork Road
Middlebourne, WV 26149

Name: _____
Address: _____

SURFACE OWNER(s) (Impoundments or Pits)

Name: _____
Address: _____

COAL OWNER OR LESSEE

Name: NO DECLARATIONS ON RECORD WITH COUNTY
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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WV Department of
Environmental Protection 06/09/2017

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 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting 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 57th 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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06/09/2017

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.

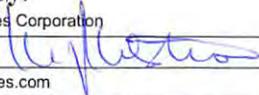
Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the 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.

WW-6A
(8-13)

API NO. 47- 095 - 02444
OPERATOR WELL NO. Carse Unit 2H
Well Pad Name: Rush Fork Pad

Notice is hereby given by:

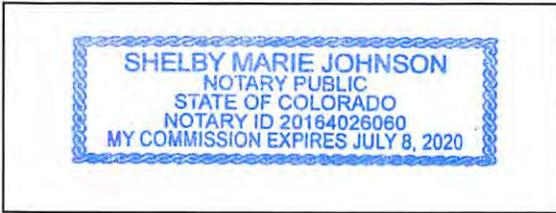
Well Operator: Antero Resources Corporation
Telephone: (303) 357-7310
Email: shjohnson@anteroresources.com



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.



Subscribed and sworn before me this 22 day of March 2017

[Signature] Notary Public

My Commission Expires 7/8/2020

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Environmental Protection **06/09/2017**

WW-6A Notice of Application Attachment (Rush Fork Pad):**List of Owners with Proposed Disturbance associated with Rush Fork Pad:****Water Source Owners –**

Owner: Shawn Huffman
Address: 8378 Wick Rd
Middlebourne, WV 26149

Owner: Richard Brightwell
Address: 8571 Wick Rd
Middlebourne, WV 26149

Owner: Brenda Mays
Address: 8809 Wick Rd
Middlebourne, WV 26149

Owner: Joseph R. Rymer Jr
Address: 3326 Rush Fork Rd
Middlebourne, WV 26149

Owner: Wesley Smith
Address: 3152 Rush Fork Rd
Middlebourne, WV 26149

Owner: Allen Moore
Address: 1986 Rush Fork Rd
Middlebourne, WV 26149

Please note there are 7 additional water sources identified on the attached map, however they are located greater than 1500' from the proposed well location.

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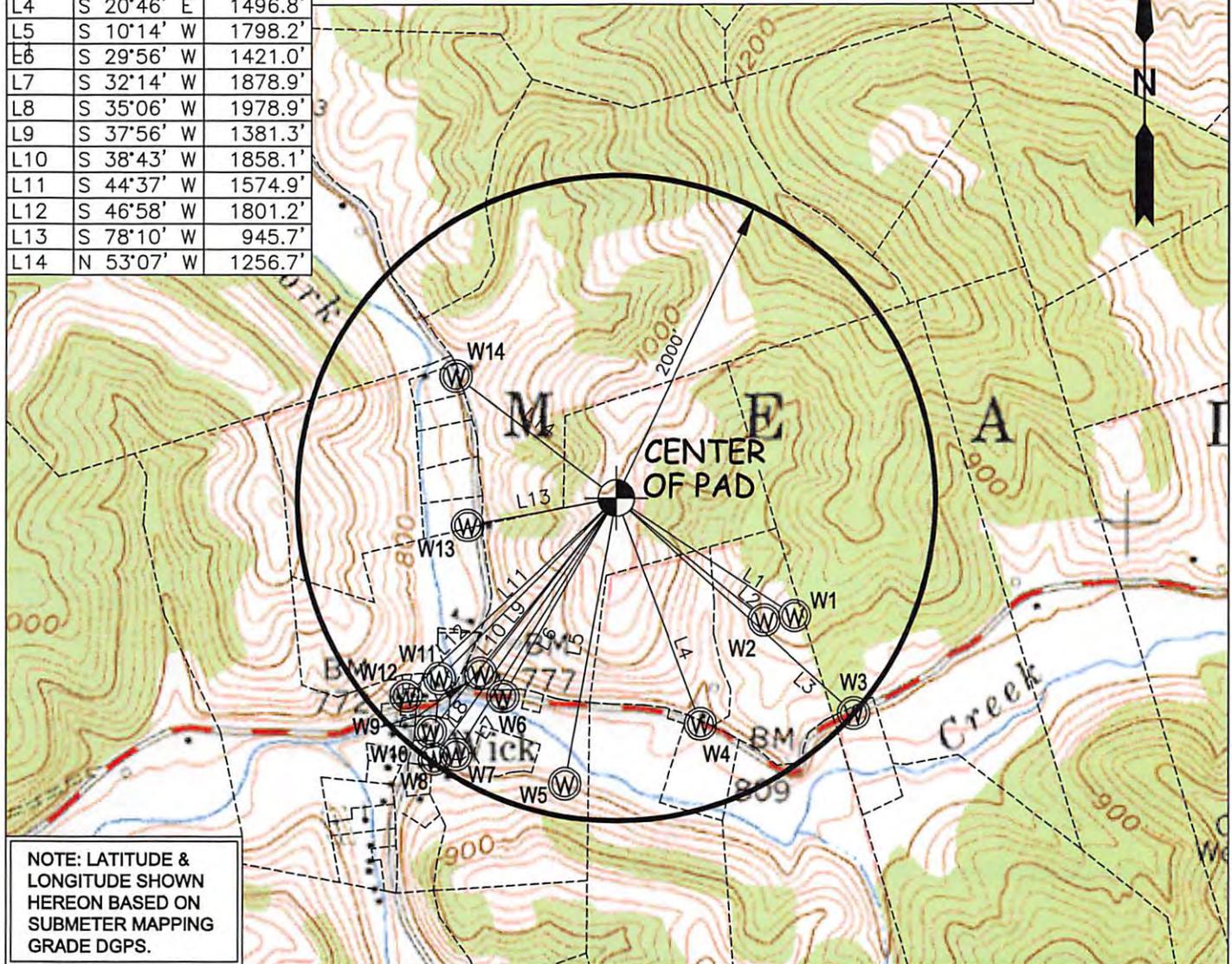
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FORM WW-9		
LINE	BEARING	DISTANCE
L1	S 56°56' E	1337.0'
L2	S 50°49' E	1198.5'
L3	S 48°14' E	1998.3'
L4	S 20°46' E	1496.8'
L5	S 10°14' W	1798.2'
L6	S 29°56' W	1421.0'
L7	S 32°14' W	1878.9'
L8	S 35°06' W	1978.9'
L9	S 37°56' W	1381.3'
L10	S 38°43' W	1858.1'
L11	S 44°37' W	1574.9'
L12	S 46°58' W	1801.2'
L13	S 78°10' W	945.7'
L14	N 53°07' W	1256.7'

RUSH FORK PAD ANTERO RESOURCES CORPORATION

PAGE OF



WELL	SURFACE OWNER	ADDRESS	DIST-TM-PAR	WELL LATITUDE	WELL LONGITUDE
W1	SHAWN HUFFMAN	8378 WICK RD, MIDDLEBOURNE, WV 26149	6-8-33.1	39°24'53.83"	80°57'56.27"
W2	SHAWN HUFFMAN	8378 WICK RD, MIDDLEBOURNE, WV 26149	6-8-33.1	39°24'53.52"	80°57'58.71"
W3	COMMUNITY CHURCH OF JESUS CHRIST	207 FAIRVIEW DR, ST. MARYS, WV 26170	6-8-32.1	39°24'47.94"	80°57'51.43"
W4	RICHARD BRIGHTWELL	8571 WICK RD, MIDDLEBOURNE, WV 26149	6-8-33	39°24'47.11"	80°58'03.65"
W5	STEPHEN HENDERSON	27 HOG RUN RD, MIDDLEBOURNE, WV 26149	6-8A-1	39°24'43.32"	80°58'14.40"
W6	BRENDA MAYS	8809 WICK RD, MIDDLEBOURNE, WV 26149	6-8A-3	39°24'48.57"	80°58'19.48"
W7	STEPHEN HENDERSON	27 HOG RUN RD, MIDDLEBOURNE, WV 26149	6-8A-1.1	39°24'44.99"	80°58'23.14"
W8	RICHARD KIRKBRIDE	67 HOG RUN RD, MIDDLEBOURNE, WV 26149	6-8A-6	39°24'44.67"	80°58'24.86"
W9	JOSEPH RYMER JR	3326 RUSH FORK RD, MIDDLEBOURNE, WV 26149	6-8-34	39°24'49.95"	80°58'21.29"
W10	STEPHEN HENDERSON	27 HOG RUN RD, MIDDLEBOURNE, WV 26149	6-8A-5	39°24'46.34"	80°58'25.20"
W11	THERESA WELLS	8872 WICK RD, MIDDLEBOURNE, WV 26149	6-8-36	39°24'49.60"	80°58'24.56"
W12	PHILLIP HAMILTON	8944 WICK RD, MIDDLEBOURNE, WV 26149	6-8A-1.10	39°24'48.50"	80°58'27.22"
W13	WESLEY SMITH	3152 RUSH FORK RD, MIDDLEBOURNE, WV 26149	6-8-2.3	39°24'59.03"	80°58'22.52"
W14	ALLEN MOORE	1986 RUSH FORK RD, MIDDLEBOURNE, WV 26149	6-8-2.1	39°25'08.15"	80°58'23.66"

WILLOW LAND SURVEYING, PLLC P.O. BOX 17, PENNSBORO, WV 26415 (304) 659-1717	TOPO SECTION(S) OF ; MIDDLEBOURNE 7.5'	SCALE : 1-INCH = 1000-FEET MAR 24 2000'
	JOB #: 17-022WA	
DATE: 3/21/17	DRAWN BY: T.B.S.	FILE: RUSHFORKPADWW

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: 03/08/2017 **Date Permit Application Filed:** 03/22/2017

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: Joseph R. Rymer, Jr.
Address: 3326 Rush Fork Rd.
Middlebourne, WV 26149

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: West Virginia UTM NAD 83 Easting: 39.416824 (Approximate Pad Center)
County: Tyler Northing: -80.969457 (Approximate Pad Center)
District: Meade Public Road Access: Middlebourne-Wick (CR 7)
Quadrangle: Middlebourne 7.5' Generally used farm name: Joseph R. Rymer, Jr.
Watershed: Outlet Middle Island Creek

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 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Notice is hereby given by:

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

Authorized Representative: Kara Quackenbush
Address: 1615 Wynkoop St.
Denver, CO 80202
Telephone: 303-357-7310
Email: kquackenbush@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 of your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

MAR 24 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

Jim Justice
Governor

Thomas J. Smith, P. E.
Secretary of Transportation/
Commissioner of Highways

March 15, 2017

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

Subject: DOH Permit for the Rush Fork Pad, Tyler County
Carse Unit 2H Well site 47-095-02444

Dear Mr. Martin,

This well site will be accessed from a DOH permit #06-2014-0752 which has been issued to Antero Resources Corporation for access to the State Road for a well site located off of Tyler County Route 7 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-6
File

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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	111-46-6
Methenamine	100-97-0
Polyethylene polyamine	68603-67-8
Coco amine	61791-14-8
2-Propyn-1-olcompound with methyloxirane	38172-91-7

Antero Resources Corporation Site Construction Plan for Rush Fork Well Pad & Water Containment Pad

Antero Resources Corporation (Antero) is submitting the following Site Construction Plan in compliance with §35-8-5.5. This plan is submitted in conjunction with the Rush Fork Well Pad & Water Containment Pad Site Design & Construction Plan, Erosion & Sediment Control Plans prepared in accordance with the West Virginia Code of State Rules, Division of Environmental Protection and Office of Oil and Gas, and certified by Navitus Engineering, Inc., a West Virginia registered professional engineer.

Requirement §5.5.a. *The plan should describe the nature and purpose of the construction project and identify the procedures for construction that will be used to achieve site stability. The plan shall be considered conditions of the permit and be enforceable as such.*

Antero Response

The nature and purpose of the subject project is to perforate, fracture, and complete one or more horizontal shallow wells. Procedures to achieve site stability include seeding and mulching of earth disturbed areas and implementation of erosion and sediment best management practices (BMPs). Details of seeding and mulching rates as well as procedures for installation and maintenance of erosion and sediment BMPs are outlined on page 2 of "Rush Fork Well Pad & Water Containment Pad Site Design & Construction Plan, Erosion & Sediment Control Plans" (Site Design) prepared and certified by Navitus Engineering, Inc. of West Virginia.

These procedures will be considered as conditions of the permit and shall be inspected and maintained for continual compliance measures outlined in §35-8-5.5.

Requirement §5.5.b.1. *A vicinity map location the site in relation to the surrounding area and roads;*

Antero Response

Please refer to the vicinity maps on page 1 for the location of the site in relation to the surrounding area and roads.

Requirement §5.5.b.2. *A plan view site map at a scale of one inch equal to one hundred feet (1"=100') or greater that shows appropriate detail of all site features and:*

Requirement §5.5.b.2.A. *Clearly identifies the limit of disturbance for the project;*

Antero Response

"Overall Plan Sheet Index & Volumes," "Access Road & Staging Area Plan," and "Access Road & Well Pad/Water Containment Pad Plan" maps are included on pages 8-10 of the Site Design.

Requirement §5.5.b.2.B. *Provides existing topographic information on a contour interval that affords sufficient detail to illustrate site terrain conditions*

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Antero Response

Please refer to the "Existing Conditions" and "Existing Structures & Features" map on page 6-7 of the Site Design for the current topographic conditions for the constructed pad on a contour interval that affords sufficient detail to illustrate site terrain conditions.

Requirement §5.5.b.2.C. Identifies proposed cut and fill areas with grading contours at an interval that provides sufficient detail to accurately depict slope ratios, indicating top and bottom of slopes; and

Antero Response

Please refer to "Overall Plan Sheet Index & Volumes," "Access Road & Staging Area Plan," and "Access Road & Well Pad/Water Containment Pad Plan" maps on pages 8-10 as well as the "Well Pad/Water Containment Pad Grading Plan," "Access Road Profiles & Sections," "Well Pad /Water Containment Pad Sections," "Stockpile Sections," and "Stockpile & Staging Area Sections" on pages 11-16 of the Site Design for proposed cut and fill areas with grading contours.

Requirement §5.5.b.2.D. Identifies any existing structures, roads, water bodies, and other critical areas within the area that would most likely be affected by the construction.

Antero Response

Please refer to "Overall Plan Sheet Index & Volumes," "Access Road & Staging Area Plan," and "Access Road & Well Pad/Water Containment Pad Plan" maps on pages 8-10 for the maps identifying any structures, roads, water bodies, and other critical areas within the area of interest that would be most likely affected by construction.

Requirement §5.5.b.3. A cross-section of the length and width of the location, providing cut and fill volumes; and

Antero Response

Please refer to Overall Plan Sheet Index & Volumes," "Access Road & Staging Area Plan," and "Access Road & Well Pad/Water Containment Pad Plan" maps on pages 8-10 as well as the "Well Pad/Water Containment Pad Grading Plan," "Access Road Profiles & Sections," "Well Pad /Water Containment Pad Sections," "Stockpile Sections," and "Stockpile & Staging Area Sections" on pages 11-16 for a cross-section of the location. The cut and fill volumes can be found in "Material Quantities" on page 4.

Requirement §5.5.b.4. Any other engineering designs or drawings necessary to construct the project.

Antero Response

All other engineering designs and drawings necessary to construct this project are included in the Site Design.

Requirement §5.5.c. At a minimum, site construction shall be conducted in accordance with the following criteria:

Antero Response

All Antero contractors shall be notified of and comply with the measures outlined in Section 5.5.c. of §35-8.

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Requirement §5.5.c.1. All woody material, brush, and trees shall be cleared from the site area and kept to the minimum necessary for proper construction, including the installation of necessary sediment controls. Trees six inches in diameter and larger shall be cut and logs stacked;

Antero Response

The Site Design outlines measures to maintain compliance with Section 201 of the WVDOH Specifications which outlines clearing and grubbing measures. Please refer to "Construction and E&S Control Notes" on page 2 of the Site Design.

Requirement §5.5.c.2. Topsoil shall be removed from construction areas and stockpiled for reuse during reclamation. In woodland areas, tree stumps, large roots, large rocks, tree and leaf debris, and ground vegetation shall be removed prior to actual site constructions;

Antero Response

The Site Design outlines procedures for stripping and stocking topsoil. Please refer to "Construction and E&S Control Notes" on page 2 of the Site Design. In addition, soil for stockpiling and use as fill shall be further compliant with measures outlined in Section 5.5.c.2. of §35-8-5.5.

Requirement §5.5.c.3. No embankment fill shall be placed on frozen material;

Antero Response

All Antero contractors shall be notified of and comply with measures outlined in Section 5.5.c.3. of §35-8-5.5.

Requirement §5.5.c.4. The fill material shall be clean mineral soil, free of roots, woody vegetation, stumps, sod, large rocks, frozen soil or other objectionable material;

Antero Response

The Site Design outlines procedures for stripping and stocking topsoil. Please refer to "Construction and E&S Control Notes" on page 2 of the Site Design. In addition, soil shall be further defined to the measures outlined in Section 5.5.c.4. of §35-8-5.5.

Requirement §5.5.c.5. Embankment material shall exhibit adequate soil strength and contain the proper amount of moisture to ensure that compaction will be achieved;

Antero Response

All Antero contractors shall be notified of and comply with measures outlined in Section 5.5.c.5. of §35-8-5.5.

Requirement §5.5.c.6 Earthen fill slopes should be constructed with slopes no steeper than a ratio of two to one (2:1);

Antero Response

The Site Design outlines all earthen fill slopes to be constructed with slopes no steeper than a ratio of two to one (2:1).

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Requirement §5.5.c.7. *Fill material will be placed in lifts or layers over the length of the fill. Lift thickness of soil shall be as thin as the suitable random excavated material will permit, typically from six to twelve (12) inches; and*

Antero Response

Please refer to the "Construction and E&S Control Notes" on page 2 of the Site Design. Fill shall be placed in horizontal lifts of maximum loose depth of 12 inches. Compaction will be performed with a compactor with a minimum of five ton static drum weight vibratory roller or five ton static drum weight sheeps footed compactor as appropriate for the type of soil material at the site or other compactor approved by the Engineer.

Requirement §5.5.c.8. *The size of rock lifts shall not exceed thirty-six (36) inches. The rock shall not be greater in any dimension than thirty-six (36) inches;*

Antero Response

All Antero contractors shall be notified of and comply with measures outlined in Section 5.5.c.8. of §35-8-5.5.

Requirement §5.5.c.9. *Compaction shall be obtained by compaction equipment or by routing the hauling equipment over the fill so that the entire surface of each fill lift is compacted by at least one wheel or tread track of equipment or by a compactor. Each lift shall be compacted before beginning the next lift;*

Antero Response

Compaction compliance measures are outlined in the "Construction and E&S Control Notes" on page 2. Compaction is required with a compactor with a minimum of five ton static drum weight vibratory roller or five ton static drum weight sheeps footed compactor as appropriate for the type of soil material at the site or other compactor approved by the Engineer.

Requirement §5.5.c.10. *Surface water diversion ditches shall be constructed above the disturbed area to intercept water and to divert surface water runoff around the site; and*

Antero Response

"Construction and E&S Control Notes" on page 2 of the Site Design identifies the surface diversions used to prevent surface water and subsurface water from flowing on to the well pad and coming into contact with the stormwater associated with the well pad. Additional Erosion & Sediment BMPs will be used to prevent sediment discharges from the project.

Requirement §5.5.c.11. *In areas of steep terrain, a terraced bench shall be constructed at the base of the slope where fill is to be placed, creating a toe foundation and aid in holding fill material. Additional terracing shall be constructed from each additional fifty (50) vertical feet of slope and shall be a minimum of ten (10) feet wide.*

Antero Response

All Antero contractors shall be notified of and comply with the measures outlined in Section 5.5.c.11... of §35-8-5.5.

RECEIVED
Office of Oil and Gas

MAR 24 2017

WV Department of
Environmental Protection

06/09/2017

LOCATION COORDINATES:
 WEST VIRGINIA STATE PLANE COORDINATE SYSTEM
 NORTH ZONE, NAD83
 ELEVATION BASED ON NAVD83
 ESTABLISHED BY SURVEY GRADE GPS & OPUS
 POST-PROCESSING

WELL PAD/WATER CONTAINMENT PAD
 MADE DISTRICT, TYLER COUNTY, WEST VIRGINIA
 SUGAR CREEK WATERSHED



RUSH FORK WELL PAD/WATER CONTAINMENT PAD

SITE DESIGN & CONSTRUCTION PLAN, EROSION & SEDIMENT CONTROL PLANS

MADE DISTRICT, TYLER COUNTY, WEST VIRGINIA
 SUGAR CREEK WATERSHED

USGS 7.5 MIDDLEBOROUGH QUAD MAP

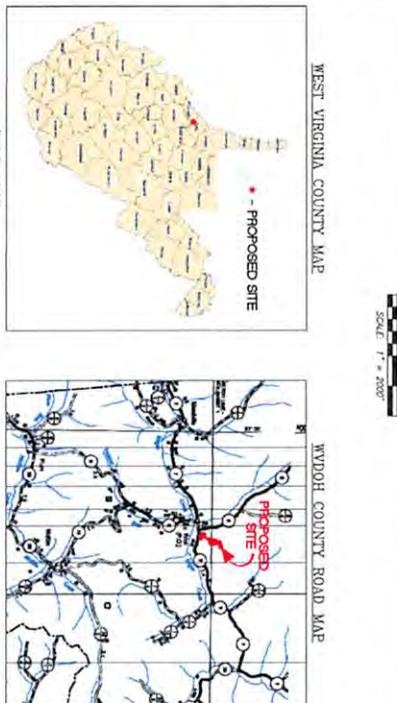


WEST VIRGINIA STATE PLANE COORDINATE SYSTEM
 NORTH ZONE, NAD83
 ELEVATION BASED ON NAVD83
 ESTABLISHED BY SURVEY GRADE GPS & OPUS
 POST-PROCESSING

SHEET INDEX:

- 1 - COVER SHEET
- 2 - CONSTRUCTION AND EAS CONTROL NOTES
- 3 - LEGEND
- 4 - EROSION CONTROL COMPUTATIONS
- 5 - EROSION CONTROL COMPUTATIONS
- 6 - EROSION CONTROL COMPUTATIONS
- 7 - EROSION CONTROL COMPUTATIONS
- 8 - EROSION CONTROL COMPUTATIONS
- 9 - EROSION CONTROL COMPUTATIONS
- 10 - ACCESS ROAD & STAGING AREA RECLAMATION PLAN
- 11 - WELL PAD/WATER CONTAINMENT PAD PLAN
- 12 - ACCESS ROAD PROFILES & SECTIONS
- 13 - STAGING AREA PROFILES & SECTIONS
- 14 - STAGING AREA PROFILES & SECTIONS
- 15 - STAGING AREA PROFILES & SECTIONS
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- 17 - STAGING AREA PROFILES & SECTIONS
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- 50 - RECLAMATION PLAN

RUSH FORK LIMITS OF DISTURBANCE AREA (AC)	
Access Road (1.1) (257)	0.61
Well Pad	7.78
Water Containment Pad	4.55
Total Area (Ac)	13.94
Total Wooded Area Disturbed	10.80



DESIGN CERTIFICATION:
 THE ENGINEER'S CONSTRUCTION NOTES
 AND EXHIBITS SHALL BE ATTACHED
 TO THE PERMIT APPLICATION IN
 ACCORDANCE WITH THE WEST VIRGINIA
 CODE OF STATE RULES, DIVISION OF
 DEPARTMENT OF ENVIRONMENTAL
 POLICE AND CLEAN AIR, CHAPTER 20-2-8

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!

RUSH FORK EROSIONAL STREAM IMPACT (LINEAR FEET)				
Stream # (RST# Proj)	Permitted Impacts	Temp Impacts	Temp Disturbance	Total
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0
11	0	0	0	0
12	0	0	0	0
13	0	0	0	0
14	0	0	0	0
15	0	0	0	0
16	0	0	0	0
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43	0	0	0	0
44	0	0	0	0
45	0	0	0	0
46	0	0	0	0
47	0	0	0	0
48	0	0	0	0
49	0	0	0	0
50	0	0	0	0

REPRODUCTION NOTE
 THESE PLANS WERE CREATED BY THE OFFICE OF NAVITUS ENERGY ENGINEERING (AAE-B) FOR THE PROJECT DESCRIBED ABOVE. ANY REPRODUCTION OF THESE PLANS FOR OTHER PROJECTS OR FOR ANY OTHER PURPOSES WITHOUT THE WRITTEN PERMISSION OF NAVITUS ENERGY ENGINEERING IS STRICTLY PROHIBITED. THESE PLANS ARE NOT TO BE USED FOR CONSTRUCTION PURPOSES UNLESS THEY ARE REPRODUCED FROM THE ORIGINAL SET OF PLANS.

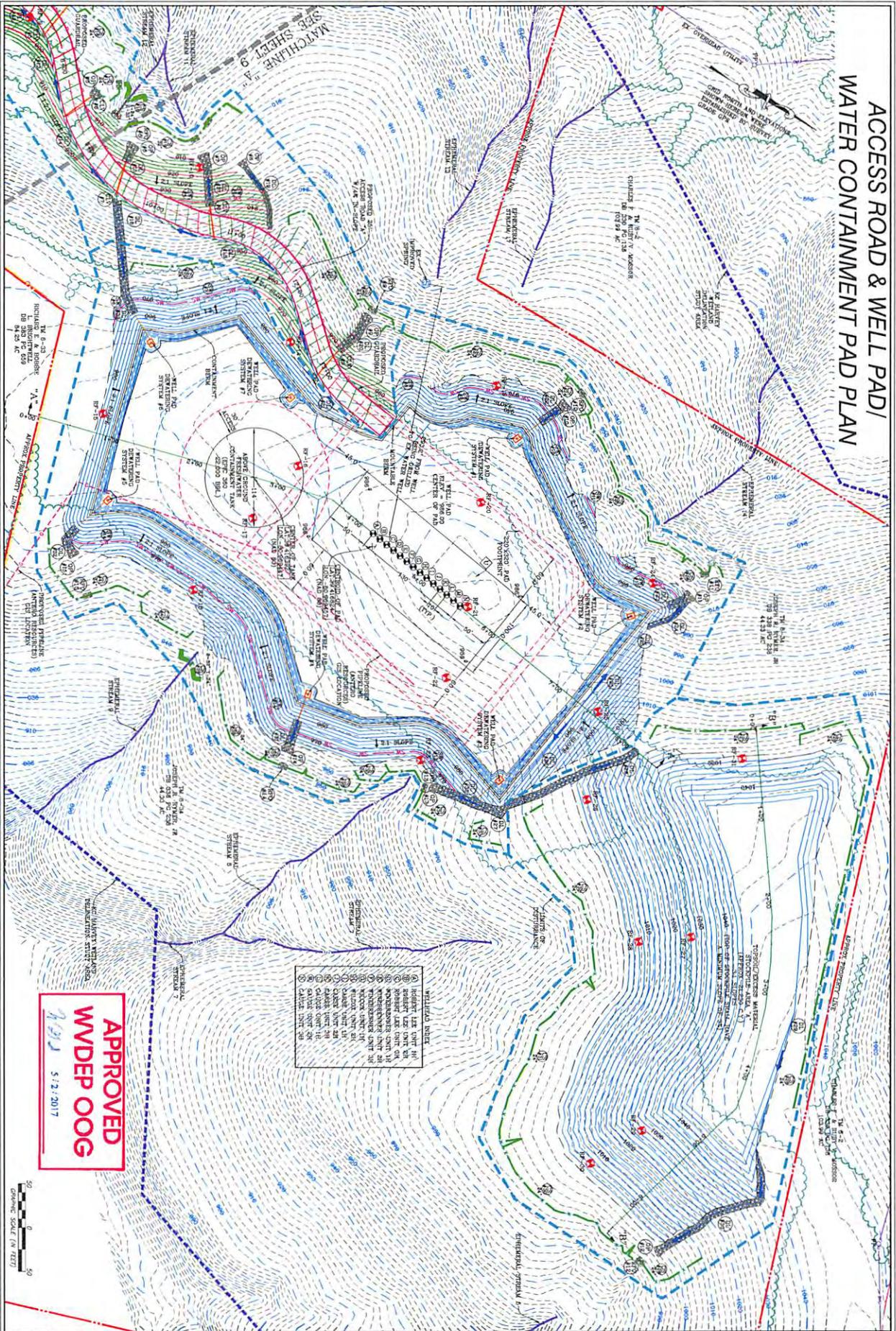
COVER SHEET
RUSH FORK
 WELL PAD/WATER CONTAINMENT PAD
 MADE DISTRICT
 TYLER COUNTY, WEST VIRGINIA

DATE: 10/04/2016
 SCALE: AS SHOWN
 SHEET 1 OF 28

NAVITUS
 ENERGY ENGINEERING
 Telephone: (855) 602-4155 | www.NavitusEng.com

06/09/2017

ACCESS ROAD & WELL PAD/ WATER CONTAINMENT PAD PLAN



- WATER CONTAINMENT**
- 1. 1/2" DIA. 10' LONG
 - 2. 1/2" DIA. 10' LONG
 - 3. 1/2" DIA. 10' LONG
 - 4. 1/2" DIA. 10' LONG
 - 5. 1/2" DIA. 10' LONG
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APPROVED
WVDEP OOG

5/12/2017



DATE: 10/04/2016
SCALE: 1" = 50'
SHEET: 10 OF 20

ACCESS ROAD & WELL PAD/WATER CONTAINMENT PAD PLAN

RUSH FORK
WELL PAD/WATER CONTAINMENT PAD
MADE, DISTRICT
TYLER COUNTY, WEST VIRGINIA

THIS DOCUMENT
WAS PREPARED FOR
BY: [Name]
DATE: [Date]

DATE	REVISION
02/01/2017	REVISED FOR CONSTRUCTION
02/20/2017	REVISED PAD CONTAINMENT BERM DETAIL

NAVITUS
ENERGY ENGINEERING

Telephone: (888) 662-4185 | www.NavitusEng.com

06/09/2017

RUSH FORK WELL PAD/WATER SITE DESIGN & CONSTRUCTION EROSION & SEDIMENT CONTROL

MEADE DISTRICT, TYLER COUNTY
SUGAR CREEK WATER

USGS 7.5 MIDDLEBOURNE

LOCATION COORDINATES:

TEMPORARY ACCESS ENTRANCE
LATITUDE: 39.413661 LONGITUDE: -80.971488 (NAD 83)
N 4362682.99 E 502454.43 (UTM ZONE 17 METERS)

ACCESS ROAD ENTRANCE
LATITUDE: 39.413495 LONGITUDE: -80.970352 (NAD 83)
N 4362664.65 E 502552.23 (UTM ZONE 17 METERS)

CENTER OF TANK
LATITUDE: 39.416392 LONGITUDE: -80.969447 (NAD 83)
N 4362986.14 E 502630.03 (UTM ZONE 17 METERS)

CENTROID OF PAD
LATITUDE: 39.416824 LONGITUDE: -80.969457 (NAD 83)
N 4363034.09 E 502629.23 (UTM ZONE 17 METERS)

GENERAL DESCRIPTION:

THE ACCESS ROAD(S) AND WELL PAD/WATER CONTAINMENT PAD ARE BEING CONSTRUCTED TO AID IN THE DEVELOPMENT OF INDIVIDUAL MARCELLUS SHALE GAS WELLS.

FLOODPLAIN NOTES:

THE PROPOSED SITE IS LOCATED WITHIN FEMA FLOOD ZONE "X" AND THE PROPOSED SITE ENTRANCE IS LOCATED WITHIN FEMA FLOOD ZONE "A" PER FEMA FLOOD MAP #54095C0150.

MISS UTILITY STATEMENT:

ANTERO RESOURCES CORPORATION WILL NOTIFY MISS UTILITY OF WEST VIRGINIA FOR THE LOCATING OF UTILITIES PRIOR TO THIS PROJECT DESIGN; TICKET #1503503452. IN ADDITION, MISS UTILITY WILL BE CONTACTED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION FOR THIS PROJECT.

ENTRANCE PERMIT:

ANTERO RESOURCES CORPORATION WILL OBTAIN AN ENCROACHMENT PERMIT (FORM MM-109) FROM THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS, PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.

ENVIRONMENTAL NOTES:

WETLAND DELINEATIONS WERE PERFORMED IN JULY 2016 BY KC HARVEY TO REVIEW THE SITE FOR WATERS AND WETLANDS THAT ARE MOST LIKELY WITHIN THE REGULATORY PURVIEW OF THE U.S. ARMY CORPS OF ENGINEERS (USACE) AND/OR THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION (WVDEP). THE JULY 21, 2016 DELINEATION MAP WAS PREPARED BY KC HARVEY AND SUMMARIZES THE RESULTS OF THE FIELD DELINEATION. THE EXHIBIT DOES NOT, IN ANY WAY, REPRESENT A JURISDICTIONAL DETERMINATION OF THE LANDWARD LIMITS OF WATERS AND WETLANDS WHICH MAY BE REGULATED BY THE USACE OR THE WVDEP. IT IS STRONGLY RECOMMENDED THAT THE AFOREMENTIONED AGENCIES BE CONSULTED IN AN EFFORT TO GAIN WRITTEN CONFIRMATION OF THE DELINEATION SHOWN ON THIS EXHIBIT PRIOR TO ENGAGING CONSTRUCTION ON THE PROPERTY DESCRIBED HEREIN. THE DEVELOPER SHALL OBTAIN THE APPROPRIATE PERMITS FROM THE FEDERAL AND/OR STATE REGULATORY AGENCIES PRIOR TO ANY PROPOSED IMPACTS TO WATERS OF THE U.S., INCLUDING WETLAND FILLS AND STREAM CROSSINGS.

GEOTECHNICAL NOTES:

THE PROPOSED ACCESS ROAD CUT SLOPE (1.5:1) SHALL BE FIELD VERIFIED BY A CERTIFIED GEOTECHNICAL ENGINEER TO ENSURE THE PROPOSED SLOPES ARE ADEQUATE PRIOR TO CONSTRUCTION. ACCESS ROAD CONSTRUCTION SHALL BE MONITORED BY A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER OR PROJECT DESIGN ENGINEER DURING CONSTRUCTION.

A SUBSURFACE INVESTIGATION OF THE PROPOSED SITE WAS PERFORMED BY PENNSYLVANIA SOIL & ROCK, INC. BETWEEN NOVEMBER 3, 2014 & NOVEMBER 6, 2014. THE REPORT PREPARED BY PENNSYLVANIA SOIL & ROCK, INC. DATED NOVEMBER 21, 2014, REVISED AUGUST 10, 2016, REFLECTS THE RESULTS OF THE SUBSURFACE INVESTIGATION. THE INFORMATION AND RECOMMENDATIONS CONTAINED IN THIS REPORT WERE USED IN THE PREPARATION OF THESE PLANS. PLEASE REFER TO THE SUBSURFACE INVESTIGATION REPORT BY PENNSYLVANIA SOIL & ROCK, INC. FOR ADDITIONAL INFORMATION, AS NEEDED.

PROJECT CONTACTS:

CHARLES E. COMPTON, III - SURVEYING COORDINATOR
CELL: (304) 719-6449

OPERATOR:

ANTERO RESOURCES CORPORATION
535 WHITE OAKS BLVD.
BRIDGEPORT, WV 26330
PHONE: (304) 842-4100
FAX: (304) 842-4102

DAVID PATSY - LAND AGENT
CELL: (304) 476-6090

ENGINEER/SURVEYOR:

NAVITUS ENGINEERING, INC.
CYRUS S. KUMP, PE - PROJECT MANAGER/ENGINEER
OFFICE: (888) 662-4185 CELL: (540) 686-8747

ELI WAGONER - ENVIRONMENTAL ENGINEER
OFFICE: (304) 842-4068 CELL: (304) 476-9770

ENVIRONMENTAL:

KC HARVEY ENVIRONMENTAL, LLC
SHANNON THOMPSON - STAFF SCIENTIST
OFFICE: (740) 373-1970 CELL: (970) 396-8250

JON McEVERS - OPERATIONS SUPERINTENDENT
OFFICE: (303) 357-6799 CELL: (303) 808-2423

AARON KUNZLER - CONSTRUCTION SUPERVISOR
CELL: (405) 227-8344

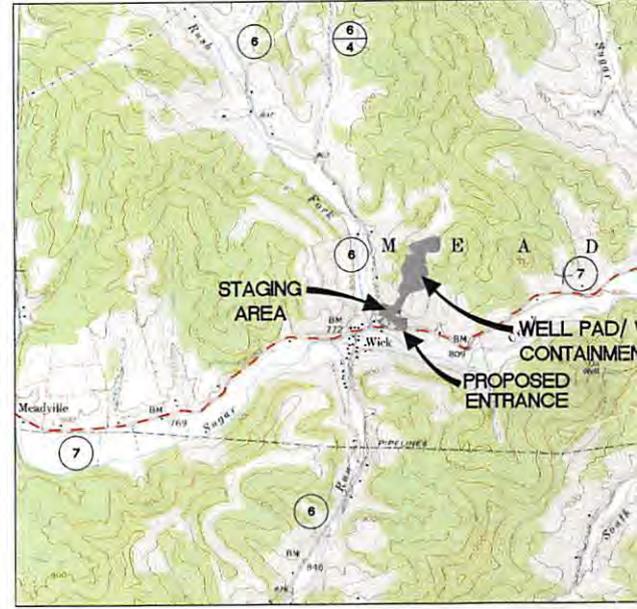
GEOTECHNICAL:

PENNSYLVANIA SOIL & ROCK, INC.
CHRISTOPHER W. SAMIOS - PROJECT ENGINEER
OFFICE: (412) 372-4000 CELL: (412) 589-0662

ROBERT B. WIRKS - FIELD ENGINEER
OFFICE: (304) 842-4100 CELL: (304) 627-7405

RESTRICTIONS NOTES:

1. THERE ARE NO PERENNIAL STREAMS, WETLANDS, LAKES, PONDS, OR RESERVOIRS WITHIN 100 FEET OF THE WELL PAD AND LOD.
2. THERE ARE NO NATURALLY PRODUCING TROUT STREAMS WITHIN 300 FEET OF THE WELL PAD AND LOD.
3. THERE ARE NO GROUNDWATER INTAKE OR PUBLIC WATER SUPPLY FACILITIES WITHIN 1000 FEET OF THE WELL PAD AND LOD.
4. THERE ARE NO APPARENT EXISTING WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF THE WELL(S) BEING DRILLED.
5. THERE ARE NO OCCUPIED DWELLING STRUCTURES WITHIN 625 FEET OF THE CENTER OF THE WELL PAD.
6. THERE ARE NO AGRICULTURAL BUILDINGS LARGER THAN 2,500 SQUARE FEET WITHIN 625 FEET OF THE CENTER OF THE WELL PAD.



WEST VIRGINIA COUNTY MAP



REPRODUCTION NOTE

THESE PLANS WERE CREATED TO BE PLOTTED ON 22"x34" (ANSI D) PAPER. HALF SCALE DRAWINGS ARE ON 11"x17" (ANSI B) PAPER.

THESE PLANS WERE CREATED FOR COLOR PLOTTING AND ANY REPRODUCTIONS IN GRAY SCALE OR COLOR MAY RESULT IN A LOSS OF INFORMATION AND SHOULD NOT BE USED FOR CONSTRUCTION PURPOSES.

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 CRS 35-8.

06/09/2017

95-02444

RUSH FORK WATER CONTAINMENT PAD CONSTRUCTION PLAN, CONTROL PLANS

TYLER COUNTY, WEST VIRGINIA
 MEADE DISTRICT
 QUAD MAP



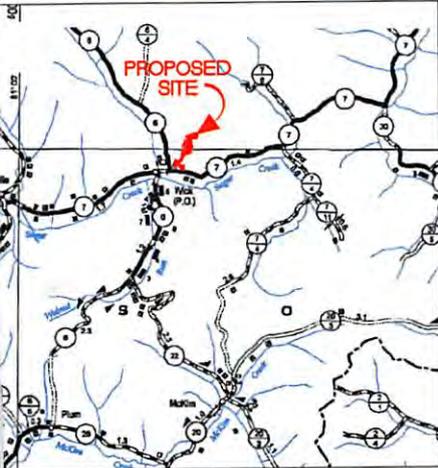
WEST VIRGINIA STATE PLANE COORDINATE SYSTEM
 NORTH ZONE, NAD83
 ELEVATION BASED ON NAVD83
 ESTABLISHED BY SURVEY GRADE GPS & OPUS
 POST-PROCESSING

SHEET INDEX:

- 1 - COVER SHEET
- 2 - CONSTRUCTION AND E&S CONTROL NOTES
- 3 - LEGEND
- 4 - MATERIAL QUANTITIES
- 5 - STORM DRAINAGE COMPUTATIONS
- 6 - EXISTING CONDITIONS
- 7 - EXISTING STRUCTURES & FEATURES
- 8 - OVERALL PLAN SHEET INDEX & VOLUMES
- 9 - ACCESS ROAD & STAGING AREA PLAN
- 10 - ACCESS ROAD & WELL PAD/WATER CONTAINMENT PAD PLAN
- 11 - WELL PAD/WATER CONTAINMENT PAD GRADING PLAN
- 12 - ACCESS ROAD PROFILES & SECTIONS
- 13-14 - WELL PAD/WATER CONTAINMENT PAD SECTIONS
- 15 - STOCKPILE SECTIONS
- 16 - STOCKPILE & STAGING AREA SECTIONS
- 17-24 - CONSTRUCTION DETAILS
- 25 - ACCESS ROAD & STAGING AREA RECLAMATION PLAN
- 26 - ACCESS ROAD & WELL PAD/WATER CONTAINMENT PAD RECLAMATION PLAN
- GE500-GE505 - GEOTECHNICAL DETAILS

RUSH FORK LIMITS OF DISTURBANCE AREA (AC)	
Impacts to Joseph R. Rymer, Jr. TM 8-34	
Access Road "A" (1,395')	5.61
Staging Area	1.49
Well Pad	7.78
Excess/Topsoil Material Stockpiles	4.85
Total Affected Area	19.73
Total Wooded Acres Disturbed	10.86

WVDOH COUNTY ROAD MAP



5000 0 5000
 SCALE: 1" = 5000'

Proposed Well Name	WV North NAD 27	WV North NAD 83	UTM (METERS) Zone 17	NAD 83 Lat & Long
Robert Lee Unit 1H	N 337287.24 E 1584799.95	N 337321.26 E 1553358.92	N 4363032.07 E 502625.20	LAT 39-25-00.5008 LONG -80-58-10.2120
Robert Lee Unit 2H	N 337297.11 E 1584801.58	N 337331.13 E 1553360.54	N 4363035.09 E 502625.64	LAT 39-25-00.5686 LONG -80-58-10.1933
Robert Lee Unit 3H	N 337306.98 E 1584803.20	N 337341.00 E 1553362.17	N 4363038.10 E 502626.09	LAT 39-25-00.6964 LONG -80-58-10.1747
Winebrenner Unit 1H	N 337316.85 E 1584804.82	N 337350.87 E 1553363.79	N 4363041.11 E 502626.53	LAT 39-25-00.7942 LONG -80-58-10.1561
Winebrenner Unit 2H	N 337326.71 E 1584806.44	N 337360.73 E 1553365.41	N 4363044.13 E 502626.97	LAT 39-25-00.8919 LONG -80-58-10.1375
Winebrenner Unit 3H	N 337336.58 E 1584808.07	N 337370.60 E 1553367.04	N 4363047.14 E 502627.42	LAT 39-25-00.9897 LONG -80-58-10.1189
Wilcox Unit 1H	N 337346.45 E 1584809.69	N 337380.47 E 1553368.96	N 4363050.16 E 502627.86	LAT 39-25-01.0875 LONG -80-58-10.1002
Wilcox Unit 2H	N 337356.32 E 1584811.31	N 337390.34 E 1553370.28	N 4363053.17 E 502628.31	LAT 39-25-01.1853 LONG -80-58-10.0816
Carse Unit 1H	N 337366.18 E 1584812.94	N 337400.20 E 1553371.90	N 4363056.19 E 502628.75	LAT 39-25-01.2831 LONG -80-58-10.0630
Carse Unit 2H	N 337376.05 E 1584814.56	N 337410.07 E 1553373.53	N 4363059.20 E 502629.20	LAT 39-25-01.3808 LONG -80-58-10.0444
Carse Unit 3H	N 337385.92 E 1584816.18	N 337419.94 E 1553375.15	N 4363062.22 E 502629.64	LAT 39-25-01.4786 LONG -80-58-10.0258
Gauge Unit 1H	N 337395.78 E 1584817.80	N 337429.81 E 1553376.77	N 4363065.23 E 502630.08	LAT 39-25-01.5764 LONG -80-58-10.0071
Gauge Unit 2H	N 337405.65 E 1584819.43	N 337439.67 E 1553378.40	N 4363068.24 E 502630.53	LAT 39-25-01.6742 LONG -80-58-09.9885
Gauge Unit 3H	N 337415.52 E 1584821.05	N 337449.54 E 1553380.02	N 4363071.26 E 502630.97	LAT 39-25-01.7719 LONG -80-58-09.9699
Well Pad Elevation	986.0			

*DMH
 4-18-17*

Stream and Impact Cause	RUSH FORK EPHEMERAL STREAM IMPACT (LINEAR FEET)				Total Disturbance (LF)
	Culvert/ Fill (LF)	Inlets/Outlets Structures (LF)	Temp. Impacts Cofferdam/ E&S Controls (LF)	Temp. Disturb. Distance to L.O.D. (LF)	
Stream 9 (Well Pad)	0	0	18	15	33
Stream 12 (Access Road "A")	20	0	5	25	50

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!!



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DATE	REVISION
02/01/2017	REVISED FOR CONSTRUCTION
02/20/2017	REVISED PAD CONTAINMENT BERM DETAIL



COVER SHEET
RUSH FORK
 WELL PAD/WATER CONTAINMENT PAD
 MEADE DISTRICT
 TYLER COUNTY, WEST VIRGINIA



DATE: 10/04/2016
 SCALE: AS SHOWN
 SHEET 1 OF 26

06/09/2017