



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, April 12, 2017
WELL WORK PERMIT
Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION (A)
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit approval for BUCKEYE RUN UNIT 2H
47-017-06803-00-00

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: BUCKEYE RUN UNIT 2H
Farm Name: PLAUGHER, CAROLYN N.
U.S. WELL NUMBER: 47-017-06803-00-00
Horizontal 6A / New Drill
Date Issued: 4/12/2017

Promoting a healthy environment.

04/14/2017

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)

Salem 3/23
06803
API NO. 47-017 - 06803
OPERATOR WELL NO. Buckeye Run Unit 2H
Well Pad Name: Plaugher North

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

1) Well Operator: Antero Resources Corporation 494507062 017 - Doddri Greenbri Salem 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Buckeye Run Unit 2H Well Pad Name: Plaugher North

3) Farm Name/Surface Owner: Carolyn N. Plaugher Public Road Access: CR 42 (Buffalo Calf)

4) Elevation, current ground: 1363' Elevation, proposed post-construction: 1363'

5) Well Type (a) Gas Oil Underground Storage

Other _____

(b) If Gas Shallow Deep

Horizontal

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus Shale: 7700' TVD, Anticipated Thickness- 50 feet, Associated Pressure- 3200#

8) Proposed Total Vertical Depth: 7700' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 19200' MD

11) Proposed Horizontal Leg Length: 10945'

12) Approximate Fresh Water Strata Depths: 144'

13) Method to Determine Fresh Water Depths: Gainer Unit 2H (API #:47-017-06226) on same pad

14) Approximate Saltwater Depths: 1887'

15) Approximate Coal Seam Depths: 2315'

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

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

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

Depth: _____

Seam: _____

Owner: _____

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18)

CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	20"	New	H-40	94#	40'	40'	CTS, 38 Cu. Ft.
Fresh Water	13-3/8"	New	J-55/H-40	54.5#/48#	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#	19200'	19200'	4872 Cu. Ft
Tubing	2-3/8"	New	N-80	4.7#		7100'	
Liners							

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-H/POZ & Tail - H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11,200			
Liners							

PACKERS

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

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

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

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

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

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

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 22.79

22) Area to be disturbed for well pad only, less access road (acres): 3.74

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

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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.

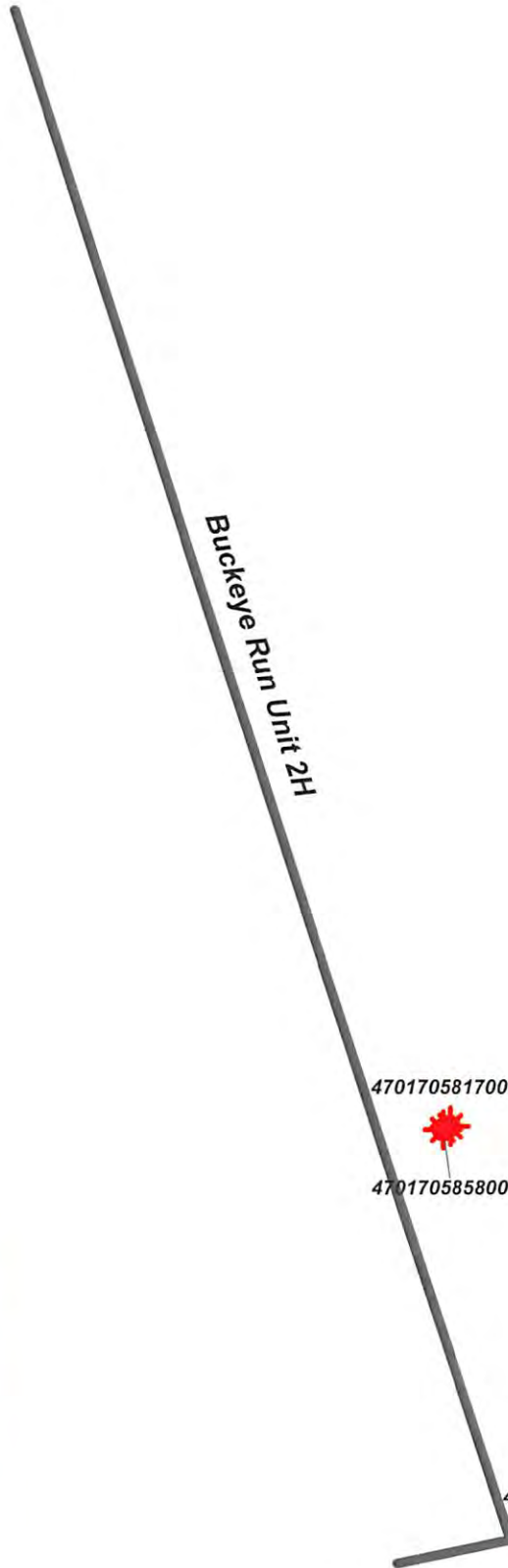
FEB 06 2017

*Note: Attach additional sheets as needed.

DHF
2/1/17



47087
4701706803



Buckeye Run Unit 2H

AOR



WELL SYMBOLS
Gas Well

January 16, 2017

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47017035180000 JAN 23 2017

WV Department of
Environmental Protection

04/14/2017

4701706803

BUCKEYE RUN UNIT 2H (PLAUGHER NORTH PAD) - AREA OF REVIEW 35-8-5.11

PAGE 2

UWI (API/NM)	Well Name	Well Number	Operator	Historical Operator	ID	ELEV. GR	ID (SSTVD)	Perforated Interval (shallowest, deepest)	Perforated Formation(s)	Productive Formation(s) not part of
47017054170000	CONNELLY	1	AMTIBO RESOURCES CORPORATION	HALL DRILLING	7412	1179	-933	7282-7318	Marcellus	Keener, Bradford, Riley, Benson, Alexander
4701705580000	CONNELLY	3	AMTIBO RESOURCES CORPORATION	HALL DRILLING	5400	1180	-4240	2264-2292	Keener	Bradford, Riley, Benson, Alexander
47017055180000	PERRY JAMES L ET AL	1	CONSOL GAS COMPANY	STONEWALL GAS	5750	1055	-4695	4528-5492	Bradford, Riley, Benson, Alexander	Keener

04/14/2017

WW-9
(4/16)

API Number 47 - 017 - 06803

Operator's Well No. Buckeye Run Unit 2H

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Antero Resources Corporation OP Code 494507062

Watershed (HUC 10) Headwaters Middle Island Creek Quadrangle Salem 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 *An associated frac pit will be used for flowback fluids

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

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

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number *UIC Permit # will be provided on Form WR-34)
- Reuse (at API Number Future permitted well locations when applicable. API# will be provided on Form WR-34)
- Off Site Disposal (Supply form WW-9 for disposal location) (Meadowfill Landfill Permit #SWF-1032-98)
- Other (Explain Northwestern Landfill Permit #SWF-1025/ WV0109410)

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

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

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

Additives to be used in drilling medium? Please See Attachment

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

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

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

Company Official (Typed Name) Cole Kilstrom

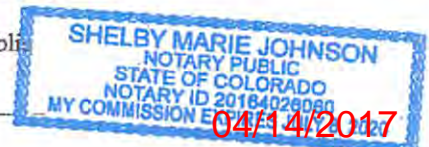
Company Official Title Environmental & Regulatory Manager

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Subscribed and sworn before me this 20th day of January, 2017

[Signature] Notary Public

My commission expires 7/8/2020



Antero Resources Corporation

Proposed Revegetation Treatment: Acres Disturbed 22.79 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

Existing Main Access Road (10.16) + Existing Drill Pad (3.74) + Existing Frac Pit (4.35) + Existing Frac Pit Access & Turnaround (1.10) + Existing Water Tank Pad, Ditch & Culvert (0.85) + Existing Water Tank Pad Access (0.10) + Existing Spoil Pads (2.49) = 22.79 Existing Acres

SEED AVAILABILITIES

Temporary		Permanent	
Seed Type	Ibs/acre	Seed Type	Ibs/acre
Tall Fescue	45	Tall Fescue	45
Perennial Rye Grass	20	Perennial Rye Grass	20

*or type of grass seed requested by surface owner

*or type of grass seed requested by surface owner

Attach:

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Daniel Fleck Daniel Fleck

Comments: _____

Title: Oil & Gas Inspector

Date: 2/1/17

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Field Reviewed? () Yes () No

17-06803



911 Address
2403 Buffalo Calf Rd
Salem, WV 26426

Well Site Safety Plan

Antero Resources

Well Name: Blackwood Unit 1H, Buckeye Run Unit 1H & 2H,
Connelly Unit 1H & 2H, Gainer Unit 1H & 2H,
Irons Unit 1H

Pad Location: Plaughter North Pad
Doddridge County/Greenbrier District

GPS Coordinates:

Entrance - Lat 39°15'44.6106"/Long -80°36'24.3102" (NAD83)

Pad Center - Lat 39°16'14.81"/Long -80°36'31.82" (NAD83)

Driving Directions:

From Clarksburg: Travel approximately 25 miles west on US-50 W. Turn right onto WV-18 N. go 0.6 miles. Turn left onto Davis St/Old US 50 W. go 0.4 miles. Take 2nd right onto WV-18 N/Sistersville Pike. Go 12.2 miles. Sharp left onto WV-74 S. Go 8.3 miles, access road will be on your right.

Alternate Route:

From the intersection of HWY 19 and US-50 EAST near the town of West Union, head east on US 50 E for 5.6 miles. Turn right onto Co Rte 50/35/Blacklick Rd and continue for 2.2 miles. Turn right onto Blacklick Rd/Sherwood-Greenbrier Rd and continue for 1.3 Miles. Take a slight left onto Buffalo Calf for 2.4 miles. The access road will be on your left.

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

Jul C M
2/1/17

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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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JAN 28 2017

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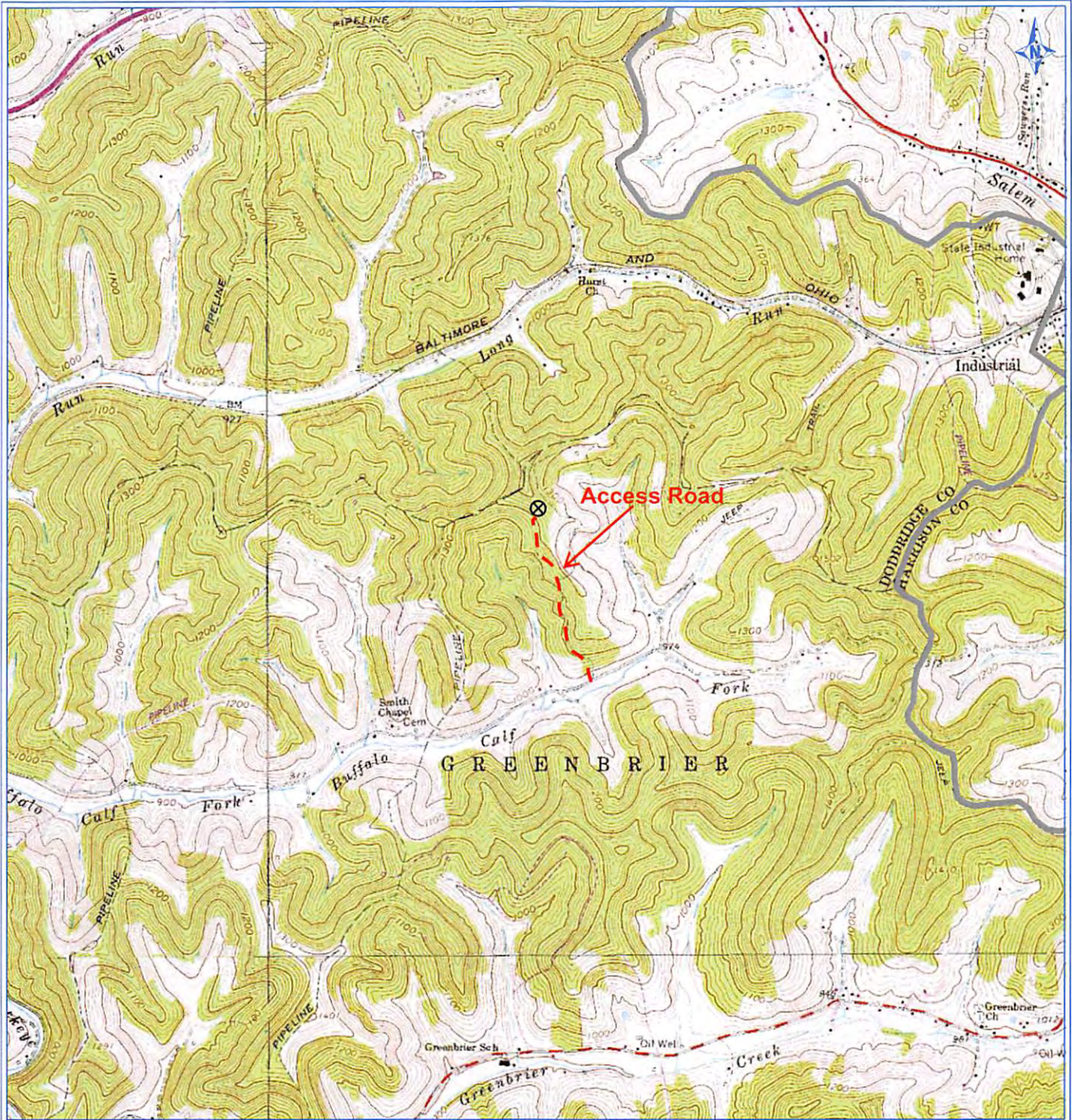
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13. Escaid 110
Drilling Fluid Solvent – Aliphatic Hydrocarbon
14. Ligco
Highly Oxidized Leonardite – Filtration Control Agent
15. Super Sweep
Polypropylene – Hole Cleaning Agent
16. Sulfatrol K
Drilling Fluid Additive – Sulfonated Asphalt Residuum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

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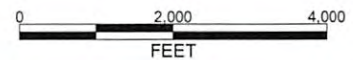
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Antero Resources Corporation

Appalachian Basin

Buckeye Run Unit 2H

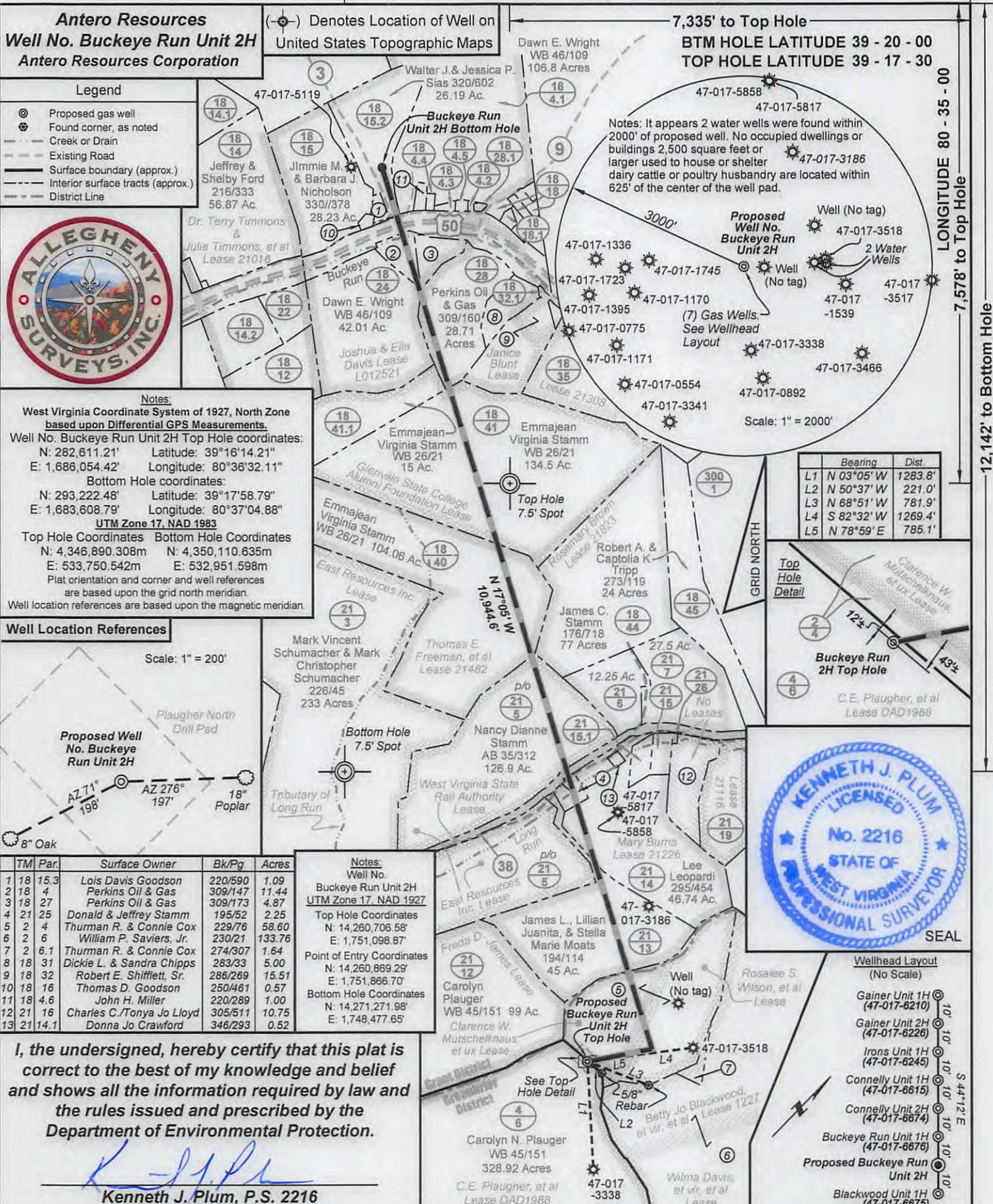
Doddridge County



REMARKS
 QUADRANGLE: SALEM
 WATERSHED: BUFFALO CALF FORK
 DISTRICT: GREENBRIER

February 11, 2013

04/14/2017



FILE NO: 35-30-G-13
 DRAWING NO: Buckeye Run 2H Well 11-16
 SCALE: 1" = 1500'
 MINIMUM DEGREE OF ACCURACY: Submeter
 PROVEN SOURCE OF ELEVATION: WVDOT, Bridgeport, WV

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

DATE: December 21 2016
 OPERATOR'S WELL NO. Buckeye Run Unit 2H
 API WELL NO. 47 - 017 - 0680346A
 STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
 As-Built 1363'
 LOCATION: ELEVATION: Original Ground 1382' WATERSHED: Headwaters Middle Island Creek QUADRANGLE: Salem
 DISTRICT: Greenbrier/Grant COUNTY: Doddridge
 SURFACE OWNER: Carolyn N. Plauger ACREAGE: 328.92
 ROYALTY OWNER: C.E. Plauger, et al; Rosalee S. Wilson, et al; Joshua & Ella Davis LEASE NO: DAD1988; L012521 ACREAGE: 165; 35.25; 21.79; 108
 PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) 7,700' TVD
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 19,200' MD

WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Dianna Stamper - CT Corporation System
 ADDRESS: 1615 Wynkoop Street ADDRESS: 5400 D Big Tyler Road
 Denver, CO 80202 Charleston, WV 25313



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.
 Kenneth J. Plum, P.S. 2216

WW-6A1

Operator's Well Number Buckeye Run 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>C.E. Plaugher, et al Lease DAD 1988</u> ✓			
C.E. Plaugher, et al	Chesterfield Energy Corporation	1/8	0135/0398
Chesterfield Energy Corporation	Dominion Appalachian Development, Inc.	Certificate of Withdrawal	Exhibit 2
Dominion Appalachian Development, Inc.	Dominion Appalachian Development, LLC	Certificate of Conversion	Exhibit 3
Dominion E & P Inc., DTI, Inc. & DAD, LLC	Antero Resources Appalachian Corporation	*Partial Assignment of Oil & Gas Leases	0230/0113
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Clarence W. Mutschelknaus, et ux Lease</u> ✓			
Clarence Mutschelknaus	Antero Resources Appalachian Corporation	1/8+	0282/0013
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Rosalee S. Wilson, et al Lease</u> ✓			
Rosalee Wilson	Antero Resources Appalachian Corporation	1/8+	0272/0441
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Mary Burns Lease 21226</u> ✓			
Mary Burns	Bluestone Energy Partners	1/8	0232/0619
Bluestone Energy Partners	Antero Resources Bluestone, LLC a wholly owned subsidiary of Antero Resources Appalachian Corporation	Affidavit Regarding Merger	DB 0288/0001
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>East Resources Inc. Lease</u> ✓			
East Resources	Antero Resources Appalachian Corporation	1/8	0261/0568
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>West Virginia State Rail Authority Lease</u> ✓			
West Virginia State Rail Authority	Antero Resources Appalachian Corporation	1/8+	0253/0409
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Rosemary Brown Lease 21823</u> ✓			
Rosemary C. Brown	Antero Resources Corporation	1/8+	329/577

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

CONTINUED ON NEXT PAGE

17-06803

WW-6A1

Operator's Well Number Buckeye Run 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>Thomas E. Freeman, et al Lease 21482</u> ✓ Thomas E. Freeman as Attorney-in-Fact, et al Tenmile Land, LLC Bluestone Energy Partners	Tenmile Land, LLC Bluestone Energy Partners Antero Resources Bluestone, LLC a wholly owned subsidiary of Antero Resources Appalachian Corporation	1/8 Assignment Affidavit Regarding Merger	0237/0175 0241/0436 DB 0288/0001
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Glenville State College Alumni Foundation Lease</u> ✓ Glenville State College Alumni Foundation, Inc.	Antero Resources Corporation	1/8+	0347/0337
<u>Janice Blunt Lease</u> ✓ Janice Blunt Tenmile Land, LLC	Tenmile Land, LLC Antero Resources Corporation	1/8+ *Partial Assignment of Oil & Gas Leases	0278/0451 0348/0443

*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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**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>Joshua & Ella Davis Lease L012521</u>	✓			
	Joshua Davis, et ux	C. Morris & G. Varner	1/8	0011/0488
	C. Morris & G. Varner	South Penn Oil Company	Assignment	0014/0164
	South Penn Oil Company	Hope Natural Gas Company	Assignment	0022/0291
	Hope Natural Gas Company	Consolidated Gas Supply Corporation	Merger	DB 0143/0345
	Consolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation	Assignment	0135/0583
	Consolidated Gas Transmission Corporation	CNG Transmission Corporation	Certificate of Authority	AOI 0051/0795
	CNG Transmission Corporation	Dominion Transmission, Inc.	Certificate of Authority	AOI 0058/0362
	Dominion E & P Inc., DTI, Inc. & DAD, LLC	Antero Resources Appalachian Corp.	*Partial Assignment of Oil & Gas Leases	0230/0113
	Antero Resources Appalachian Corp.	Antero Resources Corporation	Name Change	Exhibit 1

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

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

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

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

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

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

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FILED

JUN 10 2013

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



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

APPLICATION FOR
AMENDED CERTIFICATE
OF AUTHORITY

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

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

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

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

***Important Legal Notice Regarding Signature:** Per West Virginia Code §311-1-122. 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.

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Lease Assignments and Interest of Chesterfield Energy Corporation

n. [NOTE: By unrecorded document Chesterfield Energy Corporation merged with and into Dominion Appalachian Development, Inc.]

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AC

State of West Virginia



Certificate

*I, Betty Ireland, Secretary of State of the
State of West Virginia, hereby certify that*

DOMINION APPALACHIAN DEVELOPMENT, INC.
(a Virginia corporation)

*filed an application for Conversion in my office as required by the provisions of the West
Virginia Code and was found to conform to law.*

Therefore, I issue this

CERTIFICATE OF CONVERSION

converting the corporation to

DOMINION APPALACHIAN DEVELOPMENT, LLC
(a Virginia Limited Liability Company)



*Given under my hand and the
Great Seal of the State of
West Virginia on*

February 23, 2006
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Office of Oil and Gas

Betty Ireland
JAN 23 2017

WV Department of
Environmental Protection
Secretary of State

04/14/2017



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

January 20, 2016

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

RE: Buckeye Run Unit 2H
Quadrangle: Salem 7.5'
Doddridge County/Greenbrier District, West Virginia

Mr. Martin:

Antero Resources Corporation (Antero) is submitting the following application for a new well work permit for the Buckeye Run 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 Buckeye Run Unit 2H horizontal lateral will drill through including any and all roads crossed under as identified on the attached survey plat.

Sincerely,

Brett Kuhn
Landman

A handwritten signature in blue ink, appearing to read "Brett Kuhn", is written over the typed name. The signature is fluid and cursive.

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

Date of Notice Certification: 01/19/2017

API No. 47- 017 - 06803
Operator's Well No. Buckeye Run Unit 2H
Well Pad Name: Existing Plaugher North Pad

Notice has been given:

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

State: <u>West Virginia</u>	UTM NAD 83 Easting: <u>533750.542m</u>
County: <u>Doddridge</u>	Northing: <u>4346690.308m</u>
District: <u>Greenbrier</u>	Public Road Access: <u>CR 42 (Buffalo Calf)</u>
Quadrangle: <u>Salem 7.5'</u>	Generally used farm name: <u>Carolyn N. Plaugher</u>
Watershed: <u>Headwaters Middle Island Creek</u>	

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

<p>Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following:</p> <p>*PLEASE CHECK ALL THAT APPLY</p> <p><input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED</p> <p><input type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input checked="" type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED</p> <p><input checked="" type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or</p> <p style="padding-left: 40px;"><input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)</p> <p><input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION</p> <p><input checked="" type="checkbox"/> 5. PUBLIC NOTICE</p> <p><input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION</p>	<p>OOG OFFICE USE ONLY</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED/ NOT REQUIRED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p> <p><input type="checkbox"/> RECEIVED</p>
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Required Attachments:

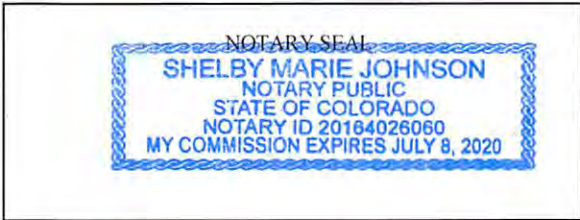
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a Class II Legal Advertisement with publication date verification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


**WV Department of
Environmental Protection**
 04/14/2017

Certification of Notice is hereby given:

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

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



Subscribed and sworn before me this 19th day of January.

Shelby Marie Johnson 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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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: 1/20/2016 **Date Permit Application Filed:** 1/20/2016

Notice of:

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

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

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

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

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

SURFACE OWNER(s)

Name: SEE ATTACHMENT

Address: _____

Name: _____

Address: _____

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

Name: SEE ATTACHMENT

Address: _____

Name: _____

Address: _____

SURFACE OWNER(s) (Impoundments or Pits)

Name: SEE ATTACHMENT

Address: _____

COAL OWNER OR LESSEE

Name: SEE ATTACHMENT

Address: _____

COAL OPERATOR

Name: NO DECLARATIONS ON RECORD WITH COUNTY

Address: _____

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

Name: SEE ATTACHMENT

Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: _____

Address: _____

*Please attach additional forms if necessary

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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 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

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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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04/14/2017

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.

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Office of Oil and Gas
JAN 23 2017
WV Department of
Environmental Protection

04/14/2017

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 20th day of Jan, 2017.
Shelby Marie Johnson Notary Public
My Commission Expires 7/8/2020

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JAN 23 2017
WV Department of
Environmental Protection

WW-6A Notice of Application Attachment (PLAUGHER NORTH PAD):**List of Surface Owner(s) with Proposed Disturbance associated with Plaughter North Pad:**

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

TM 2 PCL 4

Owner: Thurman R & Connie S Cox
Address: 119 Hastings Rd
 Salem, WV 26426
2nd Address: Thurman R Cox & Connie S Cox
 RR 1 Box 406A
 Salem, WV 26426

**TM 4 PCL 6**

Owner: Carolyn N Plaughter
 c/o Randy Plaughter
Address: RR 1 Box 407A
 Salem, WV 26426
2nd Address: Carolyn Plaughter,
 271 Patterson Street
 Salem, WV 26421

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

TM 2 PCL 4

Owner: Thurman R and Connie S Cox
Address: 119 Hastings Rd
 Salem, WV 26426
2nd Address: Thurman R Cox & Connie S Cox
 RR 1 Box 406A
 Salem, WV 26426

**TM 2 PCL 6**

Owner: William P Saviers Jr
Address: 101 Hastings Rd
 Salem, WV 26456
2nd Address: William P Saviers Jr
 RR 1 Box 407
 Salem, WV 26426

TM 4 PCL 6

Owner: Carolyn N Plaughter
Address: RR 1 Box 407A
 Salem, WV 26426
2nd Address: Carolyn Plaughter
 271 Patterson Street
 Salem, WV 26421

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 JAN 28 2017

WV Department of
 Environmental Protection

04/14/2017

IMPOUNDMENTS OR PITS**TM 2 PCL 4**

Owner: Thurman R and Connie S Cox
Address: 119 Hastings Rd
 Salem, WV 26426
2nd Address: Thurman R Cox & Connie S Cox
 RR 1 Box 406A
 Salem, WV

TM 2 PCL 6

Owner: William P Saviers Jr
Address: 101 Hastings Rd
 Salem, WV 26456
2nd Address: William P Saviers Jr
 RR 1 Box 407
 Salem, WV 26426

TM 4 PCL 6

Owner: Carolyn N Plaughter
Address: RR 1 Box 407A
 Salem, WV 26426
2nd Address: Carolyn Plaughter
 271 Patterson Street
 Salem, WV 26421

COAL OWNER OR LESSEE

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

WATER SOURCE OWNERS – Within 1500'

Owner: Thurman R and Connie S Cox
Address: 119 Hastings Rd
 Salem, WV 26426
2nd Address: Thurman R Cox & Connie S Cox
 RR 1 Box 406A
 Salem, WV

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Office of Oil and Gas

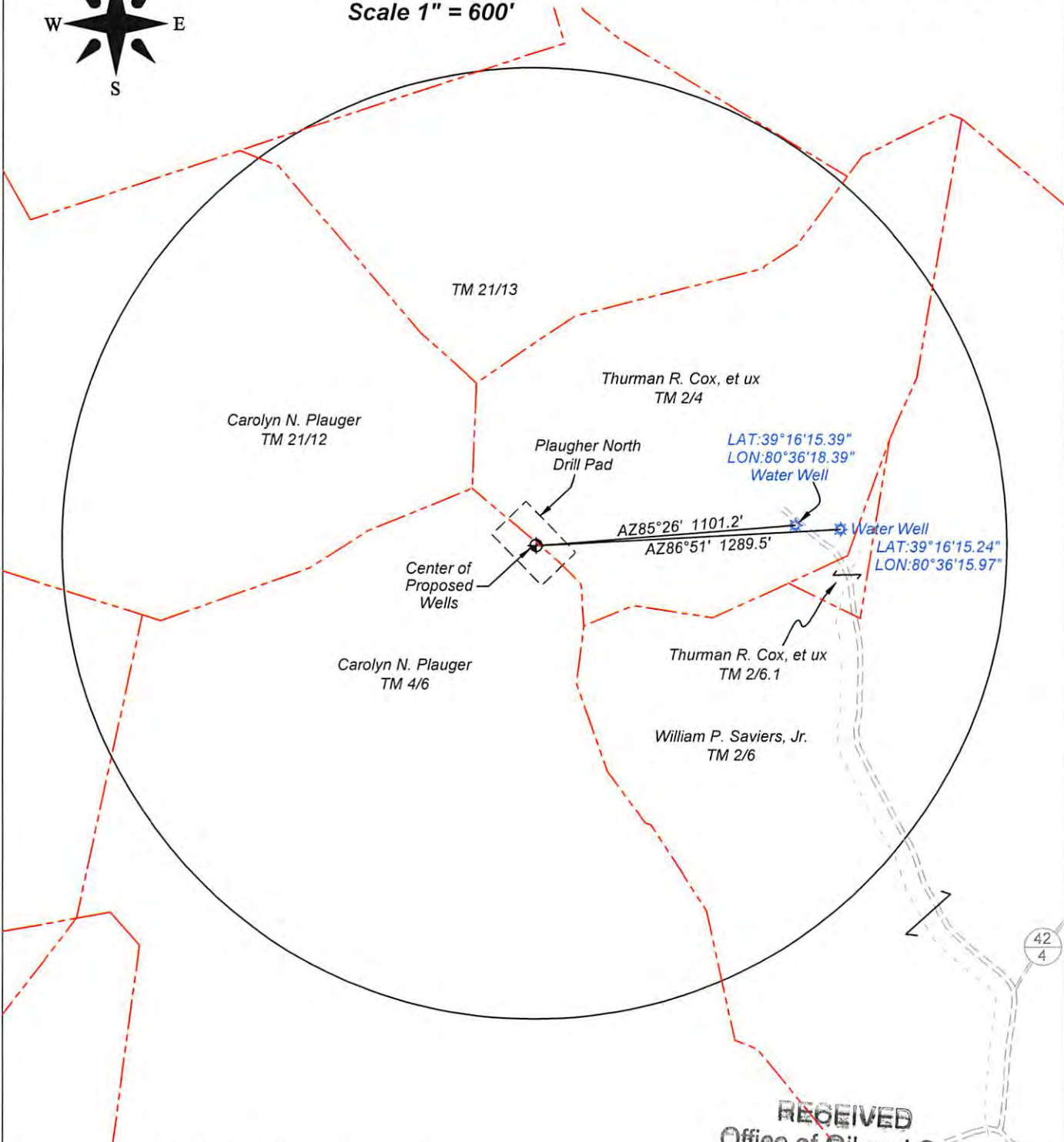
JAN 23 2017

**WV Department of
 Environmental Protection**



Scale 1" = 600'

Plaughter North Drill Pad Water Well & Spring Map



Parcel Owner Address

Thurman R. & Connie S. Cox - RR1 Box 406A Salem, WV 26426

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WV Department of
Environmental Protection

04/14/2017

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

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

Notice Time Requirement: Notice shall be provided at least **TEN (10)** days prior to filing a permit application.
Date of Notice: 11/30/2016 **Date Permit Application Filed:** 01/20/2017

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: Thurman R. & Connie S. Cox
Address: 119 Hastings Rd.
Salem, WV 26426

Name: Carolyn N. Plaugher - c/o Randy Plaugher
Address: RR 1 Box 507 A
Salem, WV 26426

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: 533741.899928m (Approximate Pad Center)
County: Doddridge Northing: 4346898.903360m (Approximate Pad Center)
District: Greenbrier Public Road Access: CR 42
Quadrangle: Salem 7.5' Generally used farm name: Plaugher, Carolyn N.
Watershed: Headwaters 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 Appalachian Corporation
Address: 1615 Wynkoop St.
Denver, CO 80202
Telephone: 303-357-7323
Email: kquackenbush@anteroresources.com
Facsimile: 303-357-7315

Authorized Representative: Kara Quackenbush
Address: 1615 Wynkoop St.
Denver, CO 80202
Telephone: 303-357-7323
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 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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JAN 23 2017
WV Department of
Environmental Protection
TM 2 PCL 4
9M 4 PCL 6
04/14/2017



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION
Division of Highways

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

Earl Ray Tomblin
 Governor

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

Reissued December 16, 2016

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 Plaughter North Pad, Doddridge County
Buckeye Run Unit 2H Well site ✓

Dear Mr. Martin,

This well site will be accessed from a DOH permit #04-2013-0423 which has been issued to Antero Resources Corporation for access to the State Road for a well site located off of Doddridge County Route 42 SLS.

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

Very Truly Yours,

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

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

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WV Department of
 Environmental Protection

04/14/2017

List of Anticipated Additives Used for Fracturing or Stimulating Well

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

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Environmental Protection

04/14/2017

PLAUGHER NORTH DRILL PAD AS-BUILT ANTERO RESOURCES CORPORATION

West Virginia Coordinate System of 1983
State Plane Grid North
Elevations NAVD88
Established by Survey Grade GPS



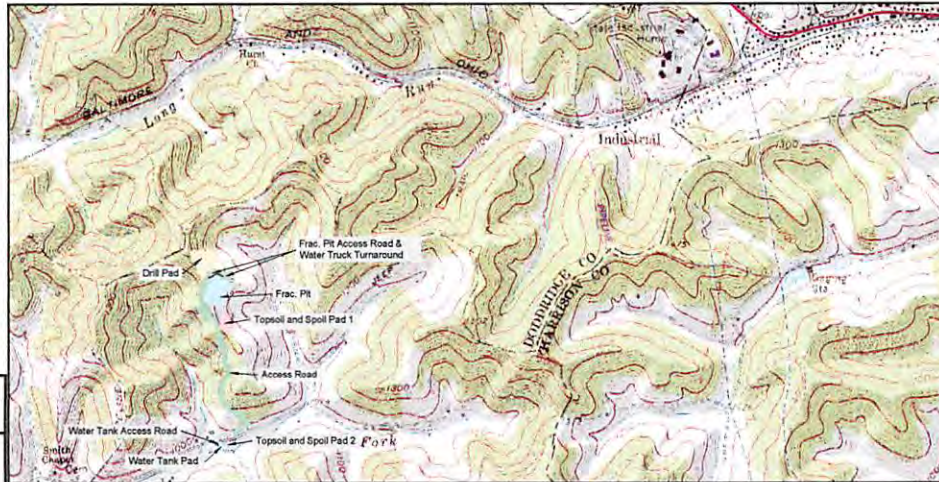
Well Location Restrictions

All the well locations are in compliance with the Well Location Restrictions of WV code 22-2A-12

- *25' From an existing well or abandoned spring used for human or domestic animals
- *25' occupied dwelling or barn greater 2500 SF used for poultry or dairy measured from the center of the pad.
- *100' From edge of disturbance to wetlands, perennial streams, natural or artificial lake, pond or reservoir.
- *300' From edge of disturbance to naturally occurring trout streams.
- *100' of surface or ground water intake to a public water supply.

Well Table

Prop. Well Center Line 111 WVA NAD83 N: 28280 73323 WVA NAD83 E: 16411 79298 LAT NAD83: 39.27076 LON NAD83: -80.85879	Prop. Well Center Line 112 WVA NAD83 N: 28280 73323 WVA NAD83 E: 16411 79298 LAT NAD83: 39.27076 LON NAD83: -80.85879	Prop. Well Center Line 113 WVA NAD83 N: 28280 73323 WVA NAD83 E: 16411 79298 LAT NAD83: 39.27076 LON NAD83: -80.85879	Prop. Well Center Line 114 WVA NAD83 N: 28280 73323 WVA NAD83 E: 16411 79298 LAT NAD83: 39.27076 LON NAD83: -80.85879
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AFFECTED TAX PARCELS 24, 25 & 46
GREENBRIER DISTRICT, DOODRIDGE COUNTY

- TM 2 - Pci 4
Thurman R. & Connie S. Cox
230.200 Pci 21
58.6 Acres
(Affected area from Proposed Drill Pad = 2.07 Acres)
(Affected area from Proposed Frac. Pit = 2.23 Acres)
(Affected area from Proposed Frac. Pit Access Road & Turnaround = 232 feet, 0.73 Acres)
- TM 2 - Pci 6
William P. Savers Jr.
228.200 Pci 21
133.76 Acres
(Affected area from Proposed Frac. Pit = 2.37 Acres)
(Affected area from Proposed Frac. Pit Access Road & Turnaround = 29 feet, 0.19 Acres)
(Affected area from Proposed Spoil Piles = 0.96 Acres)
- TM 4 - Pci 6
Carolyn M. Plaugher
WE 45, PG 151
(Affected area from Proposed Access Road = 3,444 feet, 10.16 Acres)
(Affected area from Proposed Drill Pad = 1.67 Acres)
(Affected area from Proposed Frac. Pit = 1.75 Acres)
(Affected area from Proposed Frac. Pit Access Road & Turnaround = 134 feet, 0.18 Acres)
(Affected area from Proposed Water Tank Pad, Farm Road, New Diversion Ditch & Culvert = 0.85 Acres)
(Affected area from Proposed Water Tank Pad Access = 61 feet, 0.10 Acres)
(Affected area from Proposed Spoil Piles = 1.53 Acres)

DESCRIPTION	LOD AREAS (ACRES)	AREA (LF)
MAIN ACCESS ROAD		10.16
DRILL PAD		3.74
FRAC PIT		4.35
FRAC PIT ACCESS & TURNAROUND		1.10
WATER TANK PAD, DITCH & CULVERT		0.85
WATER TANK PAD ACCESS		0.10
SPOIL PADS		2.49
TOTAL		22.79
TOTAL WOODED AREA		19.37

FLOODPLAIN CONDITIONS

DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN FLOODPLAIN:	YES
PERMIT NEEDED FROM COUNTY FLOODPLAIN COORDINATOR:	YES
HEC-RAS STUDY COMPLETED: (CURRENTLY IN PROGRESS)	YES
FLOODPLAIN SHOWN ON DRAWINGS:	YES
FIRM MAP NUMBER(S) FOR SITE:	54017C0165C
ACREAGES OF CONSTRUCTION IN FLOODPLAIN:	0.95 ACRES (TANK PAD) 0.26 ACRES (MAIN ACCESS ROAD)

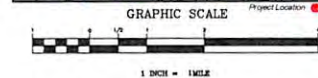
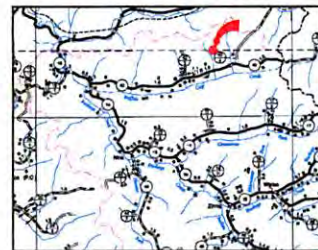
Design Certification

The drawings, construction notes and reference diagrams attached hereto have been prepared in accordance with the West Virginia Code of State Rules, Division of Environmental Protection, Office of Oil and Gas §22-6 & 35-4-21 & 35-C5R-8. The information reflects a temporary fracture pond. The computed above grade storage volume is less than 15 cubic feet, filling method is pumped, and the pond is lined.

Project Contacts

- Antero Resources**
Tom Wince - Field Engineer
304-869-3405 Off. 304-483-0933 Cell
- Anthony Smith - Construction
304-869-3405 Off. 304-673-6196 Cell
- EJ Wegener - Environmental Engineer
304-623-3842 ext. 311 Off. 304-476-9270 Cell
- John Kawcak - Antero Engineer
817-368-1553
- Aaron Kuntzer - Construction Supervisor
405-227-8344
- Surveyor & Engineer**
Bill Veltzer - P.S., E.I. - Allegheny Surveys Inc.
304-648-5035 Off. 304-619-4937 Cell
- Tom Conrathers - P.E., P.S. - Hornor Brothers Engineers
304-624-6448 Office 304-673-0777 Cell

SITE LOCATIONS STATE PLANE NAD 83 (WV NORTH ZONE)			
Begin Access Road	29 242392	-80 808753	
Center of Pad	29 270760	-80 808819	
Center of Pad (OTM 85-17 M)	N=4266064 803300	E=533741 899208	
Center of Frac. Pit	29 254425	-80 808149	
Center of Frac. Pit (OTM 85-17 M)	N=4363796 367372	E=533802 0119125	
Begin Water Tank Pad Access Road	29 252169	-80 807817	
Center of Water Tank Pad	29 252030	-80 807517	
Center of Pad (OTM 85-17 M)	N=4363796 367350	E=533801 710229	



- API# 1706210
- API# 1706226
- API# 1706245
- API# 1706615
- API# 1706674
- API# 1706675
- API# 1706676
- API# 1706677

EPHEMERAL STREAM IMPACT (LINEAR FEET)				
STREAM AND IMPACT CAUSE	CULVERT (LF)	INLETS/OUTLETS (LF)	CONSTRUCTION DISTURBANCE TO LOD (LF)	TOTAL IMPACT (LF)
STREAM 16 (ACCESS ROAD)	0	0	63 LF	63 LF
STREAM 17 (ACCESS ROAD)	0	0	76 LF	76 LF
STREAM 20 (ACCESS ROAD)	48	10	36 LF	94 LF
TOTAL				233 LF

WETLAND IMPACT (SQUARE FEET)			
WETLAND AND IMPACT CAUSE	FILL (SF)	CONSTRUCTION DISTURBANCE TO LOD (LF)	TOTAL IMPACT (LF)
3 (ACCESS ROAD)	885	0	885
TOTAL			885
TOTAL ACRES			0.02

As-Built Certification
These drawings have been prepared from actual field surveys and reflect the locations and as-built conditions known to exist following construction of this site, to the best of my knowledge.

APPROVED WVDEP OOG
11/21/2014

SHEET INDEX

- AS-BUILT COVER SHEET / LOCATION MAP 1
- AS-BUILT SITE PLANS 2-4
- AS-BUILT ROAD PROFILES 5

DATE	REVISIONS
5-28-2014	CREATED & ADDED AS BUILT ROAD PROFILES
3-18-2014	UPDATE WELL HEAD LAYOUT PER ANTERO

MISS Utility of West Virginia
1-800-245-4848
West Virginia State Law
(Section XIV: Chapter 24-C)
Requires that you call two business days before you dig in the state of West Virginia.
IT'S THE LAW!!



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

Electronic version of these plans may be viewed at: Q:\OIL GAS\SAY FILES\REVIEWS\



Allegheny Surveys, Inc.
172 Thompson Drive
Bridgeport, WV 26330
(304) 648-0635

Hornor Bros. Engineers
Singley Bros. Engineers
Civil, Mining, Environmental and Consulting Engineering
1200 Main Street, Suite 100
Martinsburg, WV 26151

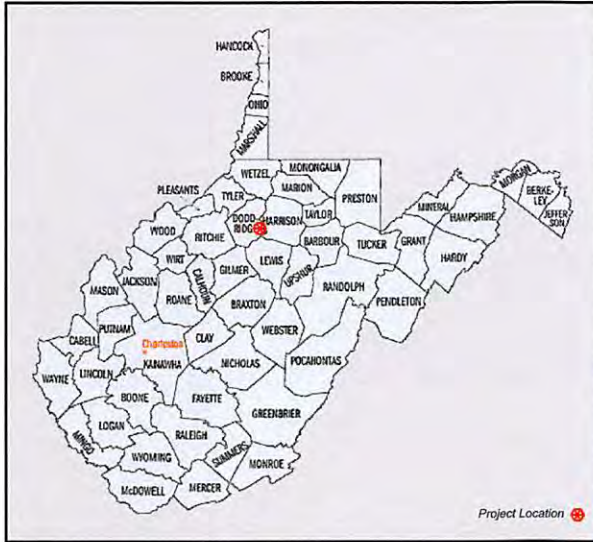


THIS DOCUMENT PREPARED FOR ANTERO RESOURCES CORPORATION.

AS-BUILT COVER SHEET / LOCATION MAP
PLAUGHER NORTH DRILL PAD SITE
GREENBRIER DISTRICT
DOODRIDGE COUNTY, WV

Date: 2-13-2014
Scale: AS SHOWN
Designed By: ESO & TSC
File No: 11-20-2014
Page: 1 of 5

PLAUGHER NO FINAL SITE DESIGN, CO EROSION & SEDIM ANTERO RESOURCES AP



Well Location Restrictions:

All Pad and Fracture Pit complies with the Well Location Restrictions of WV code 22-6A-12

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

Well Table		
Prop. Well Gainer Unit 1H WV-N NAD83 N: 282690.753333 WV-N NAD83 E: 1654571.794396 LAT NAD83: 39.270319 LON NAD83: -80.608889	Prop. Well Gainer Unit 2H WV-N NAD83 N: 282683.584226 WV-N NAD83 E: 1654578.768446 LAT NAD83: 39.270799 LON NAD83: -80.608854	Prop. Well Irons Unit 1H WV-N NAD83 N: 282676.415119 WV-N NAD83 E: 1654585.738097 LAT NAD83: 39.270780 LON NAD83: -80.608839
Prop. Well TBD-1 WV-N NAD83 N: 282669.246013 WV-N NAD83 E: 1654592.709347 LAT NAD83: 39.270760 LON NAD83: -80.608814	Prop. Well TBD-2 WV-N NAD83 N: 282669.082137 WV-N NAD83 E: 1654599.676311 LAT NAD83: 39.270741 LON NAD83: -80.608789	Prop. Well TBD-3 WV-N NAD83 N: 282684.913031 WV-N NAD83 E: 1654606.647961 LAT NAD83: 39.270721 LON NAD83: -80.608754

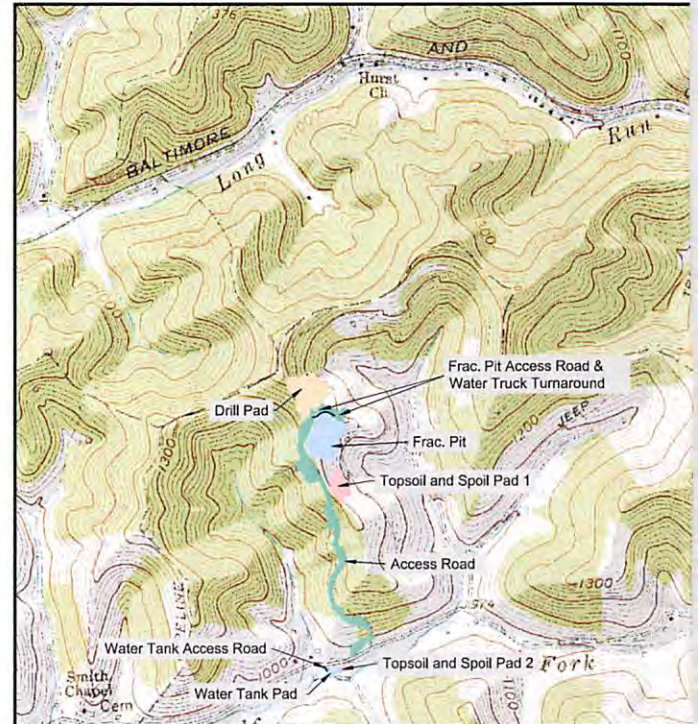
FLOODPLAIN CONDITIONS

DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN FLOODPLAIN:	YES
PERMIT NEEDED FROM COUNTY FLOODPLAIN COORDINATOR:	UNCERTAIN
HEC-RAS STUDY COMPLETED: (CURRENTLY IN PROGRESS)	YES
FLOODPLAIN SHOWN ON DRAWINGS:	YES
FIRM MAP NUMBER(S) FOR SITE:	54017C0165C
ACREAGES OF CONSTRUCTION IN FLOODPLAIN:	0.95 ACRES (TANK PAD) 0.26 ACRES (MAIN ACCESS ROAD)

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 §35-4-21. The information reflects a temporary frac pit pond. The computed above grade storage volume is less than 15 acre feet, filling method pumped, frac. pond is lined.

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!!



Project Contacts

Antero Resources

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Eli Wagoner - Environmental Engineer
304-622-3842 ext. 311 Off. 304-476-9270 Cell

John Kawcak - Antero Engineer
817-368-1553

Aaron Kunzler - Construction Supervisor
405-227-8344

Surveyor & Engineer

Bill Yetzer - PS, EI - Allegheny Surveys Inc.
304-848-5035 Off. 304-619-4937 Cell

Tom Corathers - PE, PS - Hornor Brothers Engineers
304-624-6445 Office 304-672-0777 Cell

SA
GREENBRIER DISTRICT, DC
BUFFALO C
0 1000

SITE	
STATE PLANE NA	
Begin Access Road	
Center of Pad	
Center of Pad (UTM 83-17 M)	
Center of Frac. Pit	
Center of Frac. Pit (UTM 83-17 M)	
Begin Water Tank Pad Access Road	
Center of Water Tank Pad	
Center of Pad (UTM 83-17 M)	



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

04/14/2017

17-06803

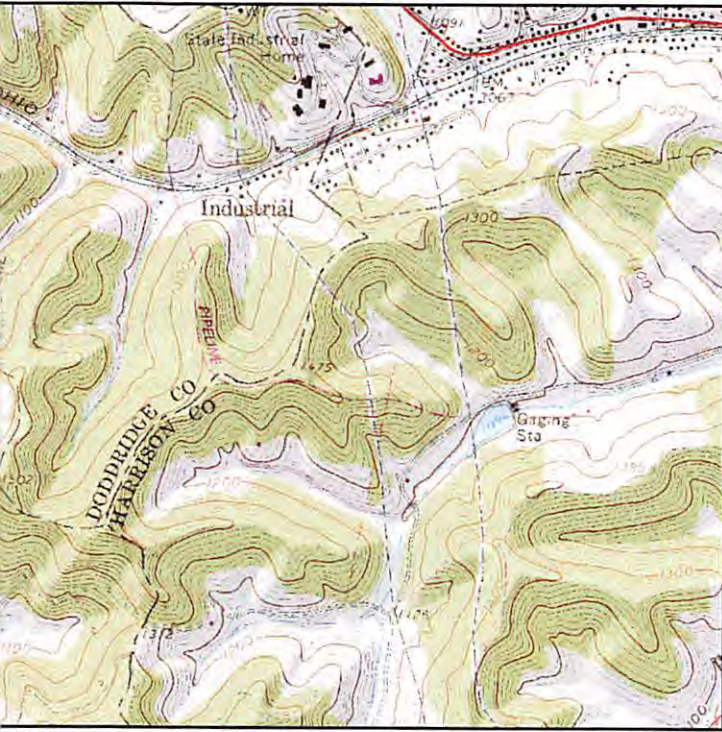
NORTH DRILL PAD CONSTRUCTION PLANS, & EROSION CONTROL PLANS APPALACHIAN CORPORATION



West Virginia Coordinate System of 1983
State Plane Grid North
Elevations NAVD88
Established By Survey Grade GPS



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



**AFFECTED TAX PARCELS: 2/4, 2/6 & 4/6
GREENBRIER DISTRICT, DODDRIDGE COUNTY**

TM 2 - Pcl. 4
Thurman R. & Connie S. Cox
DB 229, PG 21
58.6 Acres
(Affected area from Proposed Drill Pad = 2.07 Acres)
(Affected area from Proposed Frac Pit = 0.23 Acres)
(Affected area from Proposed Frac Pit Access Road & Turnaround = 232 feet, 0.73 Acres)

TM 2 - Pcl. 6
William P. Saviers Jr.
DB 230, PG 21
133.76 Acres
(Affected area from Proposed Frac. Pit = 2.37 Acres)
(Affected area from Proposed Frac. Pit Access Road & Turnaround = 29 feet, 0.19 Acres)
(Affected area from Proposed Spoil Piles = 0.96 Acres)

TM 4 - Pcl. 6
Carolyn N. Plaugher
WB 45, PG 151
(Affected area from Proposed Access Road = 3,444 feet, 10.16 Acres)
(Affected area from Proposed Drill Pad = 1.67 Acres)
(Affected area from Proposed Frac. Pit = 1.75 Acres)
(Affected area from Proposed Frac. Pit Access Road & Turnaround = 134 feet, 0.18 Acres)
(Affected area from Proposed Water Tank Pad, Farm Road, New Diversion Ditch & Culvert = 0.85 Acres)
(Affected area from Proposed Water Tank Pad Access = 61 feet, 0.10 Acres)
(Affected area from Proposed Spoil Piles = 1.53 Acres)

LOD AREAS (ACRES)	
DESCRIPTION	AREA
MAIN ACCESS ROAD	10.16
DRILL PAD	3.74
FRAC PIT	4.35
FRAC PIT ACCESS & TURNAROUND	1.10
WATER TANK PAD, DITCH & CULVERT	0.85
WATER TANK PAD ACCESS	0.10
SPOIL PADS	2.49
TOTAL	22.79
TOTAL WOODED AREA	19.37

LEM QUAD
DODDRIDGE COUNTY, WEST VIRGINIA
HALF WATER SHED

2000 3000

LOCATIONS D 83 (WV NORTH ZONE)	
LATITUDE	LONGITUDE
39.262392	-80.606753
39.270780	-80.608839
N= 4346898.903360	E= 533741.899928
39.269495	-80.608149
N= 4346756.597372	E= 533802.019126
39.262199	-80.607917
39.262030	-80.607517
N= 4345928.393520	E= 533860.170229

EPHEMERAL STREAM IMPACT (LINEAR FEET)				
STREAM AND IMPACT CAUSE	CULVERT (LF)	INLETS/OUTLETS STRUCTURES (LF)	CONSTRUCTION DISTURBANCE TO LOD (LF)	TOTAL IMPACT (LF)
STREAM 16 (ACCESS ROAD)	0	0	63 LF	63 LF
STREAM 17 (ACCESS ROAD)	0	0	76 LF	76 LF
STREAM 20 (ACCESS ROAD)	48	10	36 LF	94 LF
			TOTAL	233 LF

WETLAND IMPACT (SQUARE FEET)			
WETLAND AND IMPACT CAUSE	FILL (SF)	CONSTRUCTION DISTURBANCE TO LOD (LF)	TOTAL IMPACT (LF)
3 (ACCESS ROAD)	885	0	885
		TOTAL	885
		TOTAL ACRES	0.02

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DATE	REVISIONS	Date: 11-30-2012
2-26-2013	ADDED RESTRICTION NOTE/PIT LATS & LONGS	Scale: AS SHOWN
3-18-2013	ADDED OVERVIEW PLAN	Designed By: JDR & TBC
5-8-2013	REVISED TO REFLECT ANTEROS NEW DESIGN STANDARDS	File No. 17-06803-02 2013-05-08-024
5-8-2013	ADDRESSED WVDEP REVIEW COMMENTS	Page 1 of 26



Horner Bros. Engineers, Inc.
1902
Civil, Mining, Environmental and Consulting Engineering
140 South Third Street, Post Office Box 366,
Corryville, West Virginia, 26031 (304) 824-6465



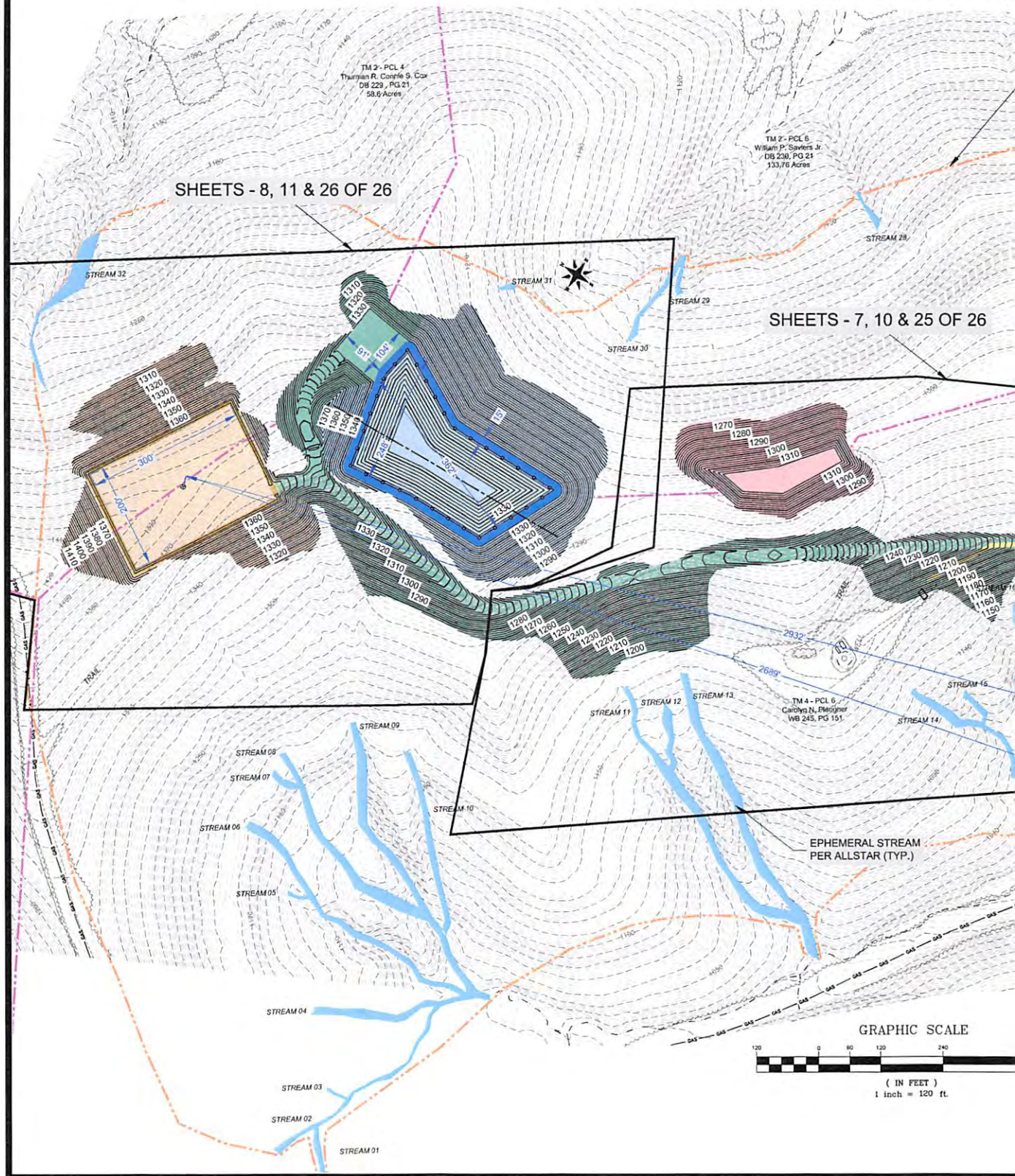
THIS DOCUMENT PREPARED FOR ANTERO RESOURCES APPALACHIAN CORP

COVER SHEET / LOCATION MAP
PLAUGHER NORTH DRILL PAD SITE
GREENBRIER DISTRICT
DODDRIDGE COUNTY, WV

Jul C Jm 2/1/17

04/14/2017

PLAUGHER NOR OVERVIEW PLAN & ANTERO RESOURCES APPA



04/14/2017

17-06803

TH DRILL PAD PLAN SHEET INDEX LACHIAN CORPORATION



All topographic information shown hereon is based on aerial photography provided by Blue Mountain Aerial Mapping with a flight date of Spring 2011



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



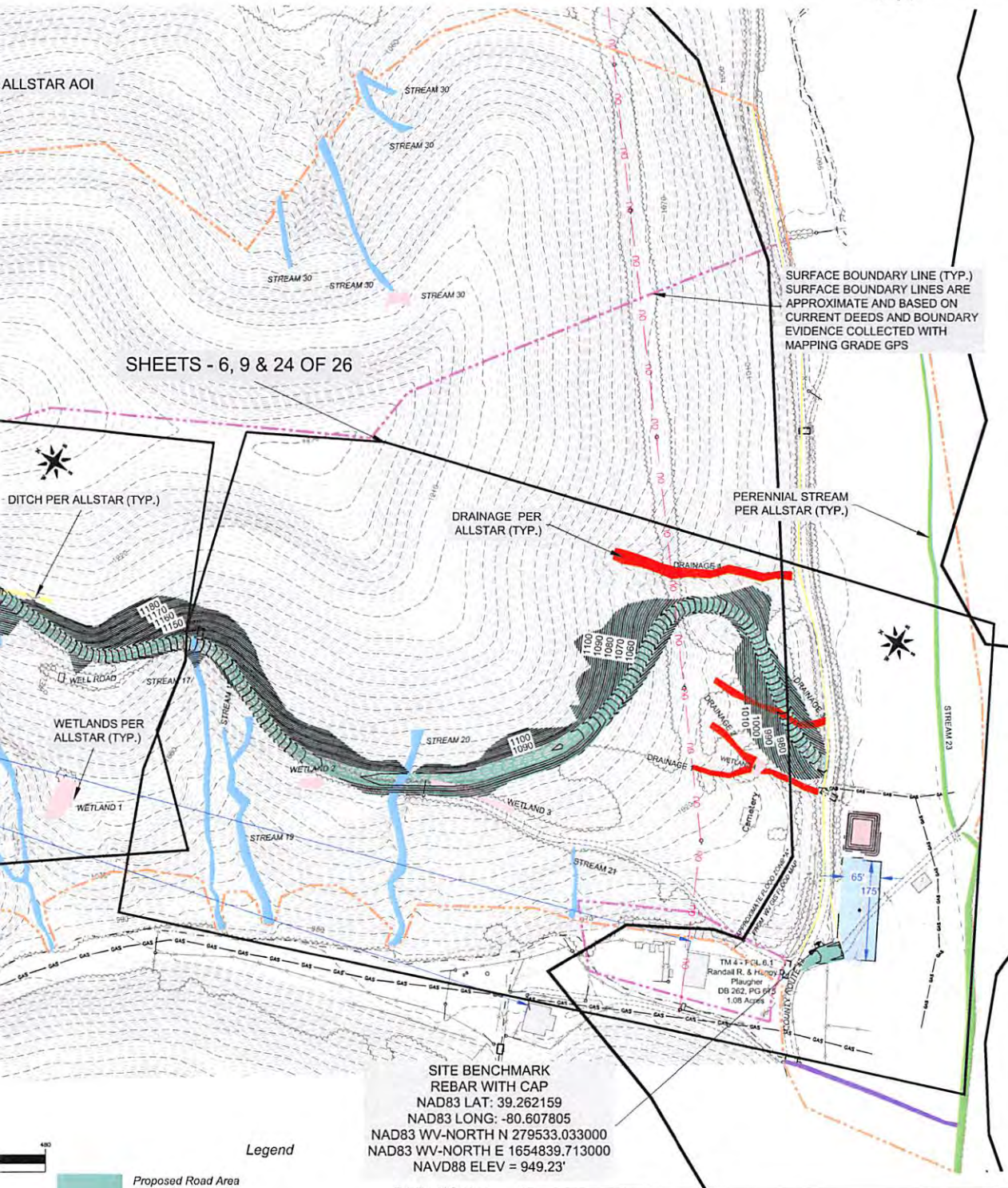
Hornor Bros. Engineers
Since 1902
Civil, Mining, Environmental and Consulting Engineering
140 South Third Street, Post Office Box 386,
Carnaboy, West Virginia, 25301 (304) 824-6445



THIS DOCUMENT PREPARED FOR ANTERO RESOURCES APPALACHIAN CORP

OVERVIEW PLAN
PLAUGHER NORTH DRILL PAD SITE
GREENBRIER DISTRICT
DODDRIE COUNTY, WV

Date: 11-30-2012
Scale: 1" = 120'
Designed By: JDR & TBC
File No. 35612072013
35612072013
Page 5 of 26



SHEETS - 6, 9 & 24 OF 26

SURFACE BOUNDARY LINE (TYP.)
SURFACE BOUNDARY LINES ARE APPROXIMATE AND BASED ON CURRENT DEEDS AND BOUNDARY EVIDENCE COLLECTED WITH MAPPING GRADE GPS

DRAINAGE PER ALLSTAR (TYP.)

PERENNIAL STREAM PER ALLSTAR (TYP.)

DITCH PER ALLSTAR (TYP.)

WETLANDS PER ALLSTAR (TYP.)

SITE BENCHMARK
REBAR WITH CAP
NAD83 LAT: 39.262159
NAD83 LONG: -80.607805
NAD83 WV-NORTH N 279533.033000
NAD83 WV-NORTH E 1654839.713000
NAVD88 ELEV = 949.23'

Legend

- Proposed Road Area
- Proposed Drill Pad Area
- Proposed Impoundment Area or Water Tank Pad
- Proposed Spill Area
- Existing 2' Contour
- Existing 10' Contour
- Existing Tree Line
- Existing Utility Pole
- Existing Overhead Utility
- Existing Gas Line CL
- Existing Water Line CL

DATE	REVISIONS
1-08-2013	REVISED AFFECTED STREAM INFO
2-26-2013	REVISED ENVIRONMENTAL DELINEATION
3-18-2013	ADDED OVERVIEW PLAN SHEET

04/14/2017