



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, March 08, 2017
WELL WORK PERMIT
Horizontal 6A / Re-Work

ANTERO RESOURCES CORPORATION (A)
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit approval for NELLIE UNIT 2H
47-033-05687-00-00

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: NELLIE UNIT 2H
Farm Name: BLAND, HUBERT JR. & LORENE
U.S. WELL NUMBER: 47-033-05687-00-00
Horizontal 6A / Re-Work
Date Issued: 3/8/2017

Promoting a healthy environment.

03/10/2017

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. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
2. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
3. 24 hours prior to the initiation of the completion process the operator shall notify the Chief or his designee.
4. During the completion process the operator shall monitor annular pressures and report any anomaly noticed to the chief or his designee immediately.
5. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
6. The operator shall provide to the Office of Oil and Gas the dates of each of the following within 30 days of their occurrence: completion of construction of the well pad, commencement of drilling, cessation of drilling, completion of any other permitted well work, and completion of the well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov.

WW-6B
(04/15)

API NO. 47- 033 - 05687
OPERATOR WELL NO. Nellie Unit 2H
Well Pad Name: Existing Hubert 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 033 - Harris Tenmile Salem & Big Isaac
Operator ID County District Quadrangle

2) Operator's Well Number: Nellie Unit 2H Well Pad Name: Existing Hubert Pad

3) Farm Name/Surface Owner: Hubert Jr. & Lorena Bland Public Road Access: CR 50/6

4) Elevation, current ground: 1376' Elevation, proposed post-construction: 1376'

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):
Marcellus Shale: 7429' TVD, Anticipated Thickness- 50 feet, Associated Pressure- 3200#

8) Proposed Total Vertical Depth: 7429' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 17455' MD

11) Proposed Horizontal Leg Length: 9560'

12) Approximate Fresh Water Strata Depths: 391'

13) Method to Determine Fresh Water Depths: Norris Unit 1H (API #47-033-05699) on same pad.

14) Approximate Saltwater Depths: 1210', 1832'

15) Approximate Coal Seam Depths: None Identified

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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MAR 06 2017

18) **CASING AND TUBING PROGRAM**

TYPE	<u>Size (in)</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft. (lb/ft)</u>	<u>FOOTAGE: For Drilling (ft)</u>	<u>INTERVALS: Left in Well (ft)</u>	<u>CEMENT: Fill-up (Cu. Ft.)/CTS</u>
Conductor	20"	New	H-40	94#	40'	40'	CTS, 38 Cu. Ft.
Fresh Water	13-3/8"	New	J-55/H-40	54.5#/48#	483' *See #19	483' *See #19	CTS, 671 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	2525'	2525'	CTS, 1028 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	20#	17455'	17455'	4385 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#		7100'	
Liners							

12/7/2016
SDW

TYPE	<u>Size (in)</u>	<u>Wellbore Diameter (in)</u>	<u>Wall Thickness (in)</u>	<u>Burst Pressure (psi)</u>	<u>Anticipated Max. Internal Pressure (psi)</u>	<u>Cement Type</u>	<u>Cement Yield (cu. ft./k)</u>
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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DEC 19 2016

WW-6B
(10/14)

API NO. 47- 033 - 05687

OPERATOR WELL NO. Nellie Unit 2H

Well Pad Name: Existing Hubert Pad

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

This well has been drilled to TD - 17,455'. Antero is requesting approval to perforate, fracture the existing horizontal shallow well and complete Marcellus Shale.

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

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

Anticipated Max Pressure - 9300 lbs

Anticipated Max Rate - 80 bpm

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 20.73 Existing Acres

22) Area to be disturbed for well pad only, less access road (acres): 3.22 Existing Acres

23) Describe centralizer placement for each casing string:

Conductor: no centralizers

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

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

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

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

Conductor: no additives, Class A cement.

Surface: Class A cement with 2-3% calcium chloride and 1/4 lb of flake

Intermediate: Class A cement with 1/4 lb of flake, 5 gallons of clay treat

Production: Lead cement- 50/50 Class H/Poz + 1.5% salt + 1% C-45 + 0.5% C-16a + 0.2% C-12 + 0.45% C-20 + 0.05% C-51

Production: Tail cement- Class H + 45 PPS Calcium Carbonate + 1.0% FL-160 + 0.2% ACGB-47 + 0.05% ACSA-51 + 0.2% ACR-20

25) Proposed borehole conditioning procedures:

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

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

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

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

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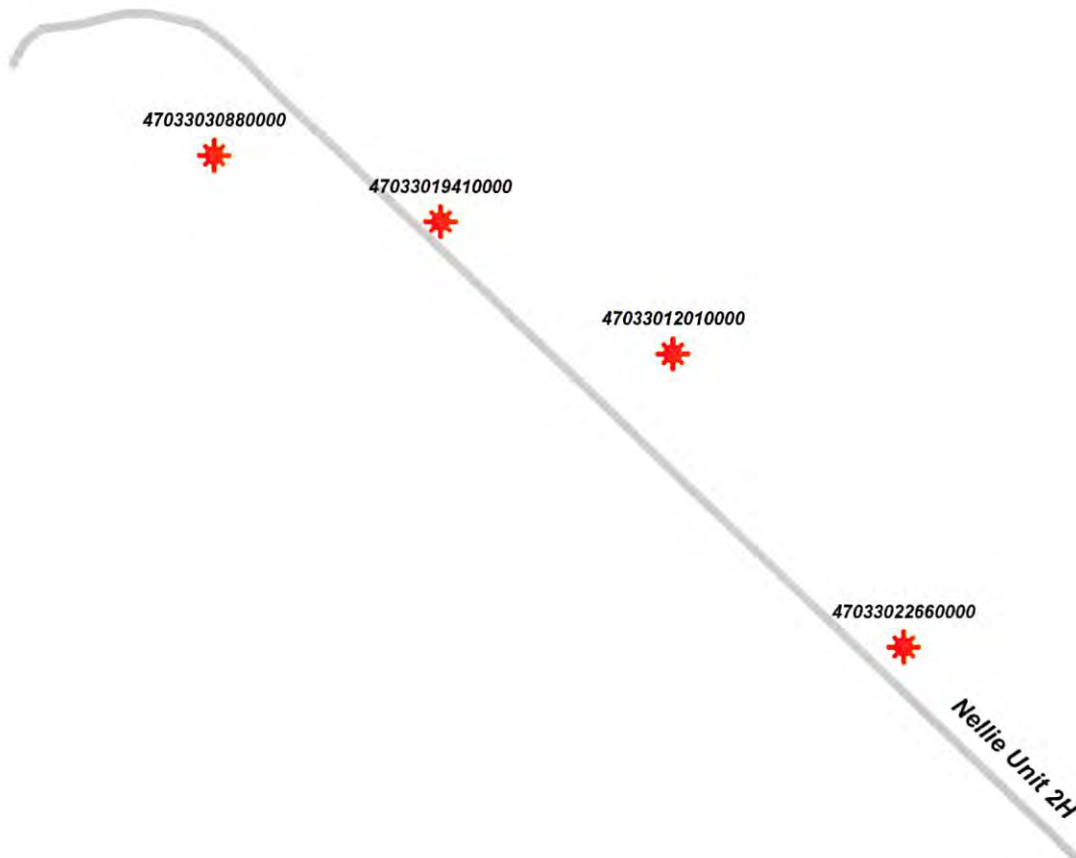
*Note: Attach additional sheets as needed.

MAR 06 2017

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4703305687F



Nellie Unit 2H - AOR



WELL SYMBOLS
Gas Well



November 12, 2016

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WV Department of
Environmental Protection

03/10/2017

NELLIE UNIT 2H (HUBERT PAD) - AREA OF REVIEW 35-8-5.11 PAGE 2

WELL (APPROX)	Well Name	Well Number	Operator	Historical Operator	FD	FLY IN	TD (FT)	Perforated Interval (shallowest, deepest)	Perforated Formation(s)	Productive Formation(s) and perf'd
470210141000	MORRIS JOHN B	CAGDAPP	CONTROL GAS COMPANY	ONG DEVELOPMENT CO	9834	1230	-4230	2730-2423	Gordon, PRR, Alexander	Big Ingh, Forts, Speechley, Baltimore, Riley, Denton, CR
470210141000	LITMAN MAXWELL	6-257	KHEIMY CORP OF AME	J.A. ENTERPRISES	9820	1220	-5220	2120-2284	Gordon, Alexander	Big Ingh, Gordon, Forts, PRR, Speechley, Baltimore, Riley, CR
470210141000	LITMAN MAXWELL	6-257	KHEIMY CORP OF AME	J.A. ENTERPRISES	9820	1210	-6210	2720-2424	Forts, PRR, Gordon, Alexander	Big Ingh, Gordon, Speechley, Baltimore, Riley, CR
470210141000	MAXWELL LITMAN	6-258	KHEIMY CORP OF AME	J.A. ENTERPRISES	9820	1210	-6210	4020-2124	Gordon, Alexander	Big Ingh, Gordon, Forts, PRR, Speechley, Baltimore, Riley, CR

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 03/10/2017

State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Well Operator's Report of Well Work

API 47-033-05687 County Harrison District Tenmile
Quad Salem Pad Name Hubert Field/Pool Name _____
Farm name Hubert, Jr. & Lorena Bland Well Number Nellie Unit 2H
Operator (as registered with the OOG) Antero Resources Corporation
Address 1615 Wynkoop Street City Denver State CO Zip 80202

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey
Top hole Northing 4344999.78 Easting 537949.55
Landing Point of Curve Northing 4345029.35 Easting 538469.72
Bottom Hole Northing 4343082.01 Easting 540523.14

Elevation (ft) 1376' GL Type of Well New Existing Type of Report Interim Final *Permit has expired*
Permit Type Deviated Horizontal Horizontal 6A Vertical Depth Type Deep Shallow
Type of Operation Convert Deepen Drill Plug Back Redrilling Rework Stimulate
Well Type Brine Disposal CBM Gas Oil Secondary Recovery Solution Mining Storage Other _____
Type of Completion Single Multiple Fluids Produced Brine Gas NGL Oil Other Not yet completed
Drilled with Cable Rotary

Drilling Media Surface hole Air Mud Fresh Water Intermediate hole Air Mud Fresh Water Brine
Production hole Air Mud Fresh Water Brine
Mud Type(s) and Additive(s)
Air- Foam & 4% KCL
Mud- Polymer

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Date permit issued 12/07/2012 Date drilling commenced 3/22/2014 Date drilling ceased 6/10/2014
Date completion activities began _____ WOC Date completion activities ceased N/A
Verbal plugging (Y/N) N Date permission granted N/A Granted by _____

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft 391' Open mine(s) (Y/N) depths N
Salt water depth(s) ft 1832' Void(s) encountered (Y/N) depths N
Coal depth(s) ft None Identified Cavern(s) encountered (Y/N) depths N
Is coal being mined in area (Y/N) N

Reviewed by: _____

APPROVED

NAME: Jackie Shonston

DATE: 11/22/14

03/10/2017

WR-35
Rev. 8/23/13

API 47-033 - 05687 Farm name Hubert, Jr. & Lorena Bland Well number Nellie Unit 2H

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/N) * Provide details below*
Conductor	24"	20"	40'	New	94#	N/A	Y
Surface	17- 1/2"	13- 3/8"	483'	New	48#	N/A	Y
Coal							
Intermediate 1	12-1/4"	9-5/8"	2525'	New	36#	N/A	Y
Intermediate 2							
Intermediate 3							
Production	8-3/4" & 8-1/2"	5-1/2"	17,455'	New	23#	N/A	Y
Tubing							
Packer type and depth set		N/A					

Comment Details *No cement to surface - Cement Squeeze - 592 Class A Cement from 1226'-1325'

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor	Class A	200 sx	15.6	1.18	38	0	8 Hrs.
Surface	Class A	588 sx	15.6	1.18	335	0	8 Hrs.
Coal							
Intermediate 1	Class A	943 sx	15.6	1.18	791	*See Comment Details above	8 Hrs.
Intermediate 2							
Intermediate 3							
Production	Class H	2744 sx	14.5 Lead 15.2 Tail	1.3 Lead 1.87 Tail	3532	-500' into Intermediate Casing	8 Hrs.
Tubing							

Drillers TD (ft) 17,455' MD, 7429' TVD; 7485' TVD (Deepest point drilled) Loggers TD (ft) 17,397'

Deepest formation penetrated Marcellus Plug back to (ft) N/A

Plug back procedure N/A

Kick off depth (ft) 4100'

Check all wireline logs run caliper density deviated/directional induction
 neutron resistivity gamma ray temperature sonic

Well cored Yes No Conventional Sidewall Were cuttings collected Yes No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING Office of Oil and Gas

Conductor- 0

Surface- 1 above guide shoe, 1 above insert float, 1 every 4th joint to surface

Intermediate- 1 above float joint, 1 above float collar, 1 every 4th joint to surface

Production- 1 above float joint, 1 below float collar, 1 every 3rd joint to top of cement

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WAS WELL COMPLETED AS SHOT HOLE Yes No DETAILS Waiting on Completion

WAS WELL COMPLETED OPEN HOLE? Yes No DETAILS Waiting on Completion

WERE TRACERS USED Yes No TYPE OF TRACER(S) USED Waiting on Completion

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EXHIBIT 1						
API 47-033-05687 Farm Name Hubert Jr & Lorena Bland, Well Number Nellie Unit 2H						
LITHOLOGY/ FORMATION	TOP DEPTH (TVD)	BOTTOM DEPTH (TVD)	TOP DEPTH (MD)	BOTTOM DEPTH (MD)	ROCK TYPE	FLUID PRODUCED
Big Lime	2280'	2393'	2280'	2393'	Limestone	
Big Injun	2394'	2781'	2394'	2781'	Sandstone	
Gantz Sand	2782'	2879'	2782'	2879'	Sandstone	
Fifty Foot Sandstone	2880'	2990'	2880'	2990'	Sandstone	
Gordon	2991'	3314'	2991'	3314'	Sandstone	
Fifth Sandstone	3315'	3349'	3315'	3349'	Sandstone	
Bayard	3350'	3919'	3350'	3919'	Sandstone	
Speechley	3920'	4429'	3920'	4429'	Sandstone	
Baltown	4430'	4759'	4437'	4786'	Sandstone	
Bradford	4760'	5280'	4787'	5353'	Sandstone	
Benson	5281'	5558'	5354'	5658'	Sandstone	
Alexander	5559'	5788'	5659'	5906'	Sandstone	
Eik	5789'	6900'	5907'	7145'	Sandstone	
Sycamore	6899'	7111'	7146'	7378'	Sandstone	
Middlesex	7112'	7272'	7379'	7566'	Shale	
Burkett	7273'	7293'	7567'	7595'	Shale	Gas
Tully	7294'	7446'	7596'	7887'	Limestone	N/A
Marcellus	7447'	7485'	7888'		Shale	Gas

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Antero Resources
Nellie Unit 2H
Harrison County West Virginia
Northing: 14254504.12
Easting: 1764874.96
As Drilled

WELL DETAILS: Nellie Unit 2H

Ground Level	1378.0	Slot			
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0.0	0.0	14254504.12	1764874.99	39° 15' 12.262 N	80° 33' 37.259 W

REFERENCE INFORMATION

Coordinate (N/E) Reference: Well Nellie Unit 2H, Grid North
 Vertical (T/D) Reference: Nellie Unit 2H GL 1378' ± 24 RKB @ 1400 Depth
 Section (V/L) Reference: Slot - (G/FM, 5.00)
 Measured Depth Reference: Nellie Unit 2H GL 1378' ± 24 RKB @ 1400 Depth
 Calculation Method: Minimum Curvature

Scientific Drilling

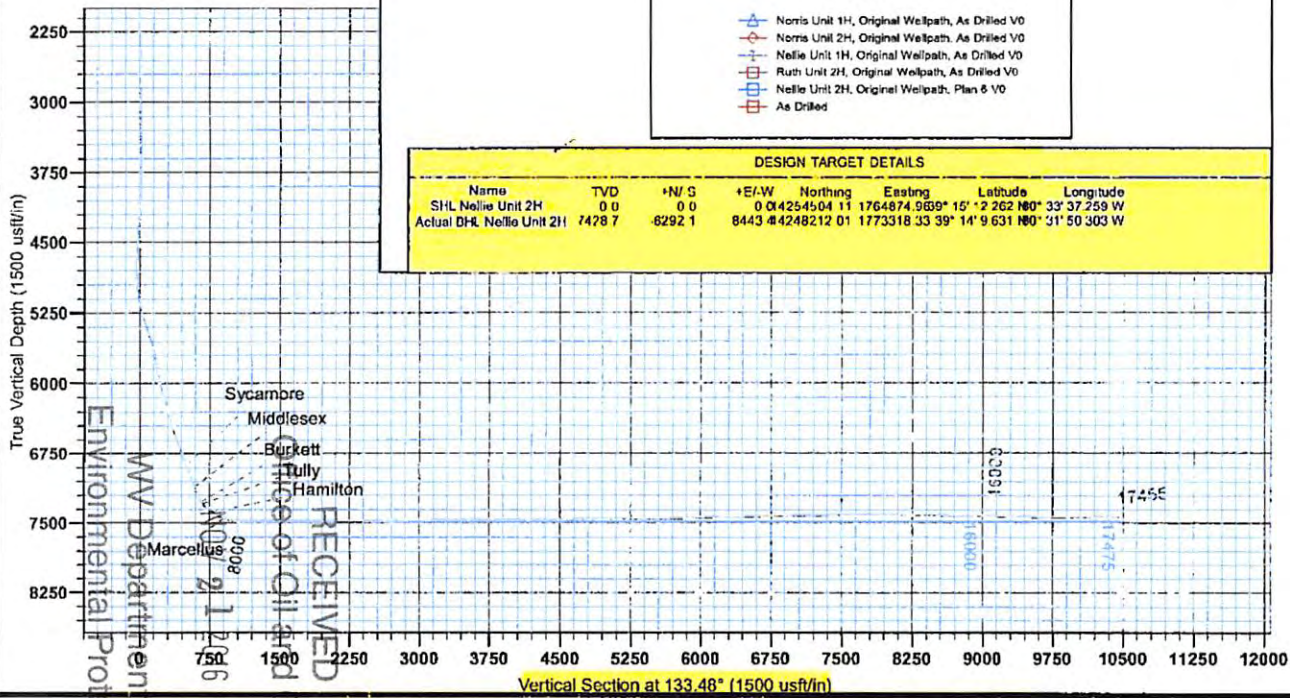
Genie Lightfoot
 Scientific Drilling
 421 South Eagle Lane
 Oklahoma City Oklahoma
 405-787-3663

LEGEND

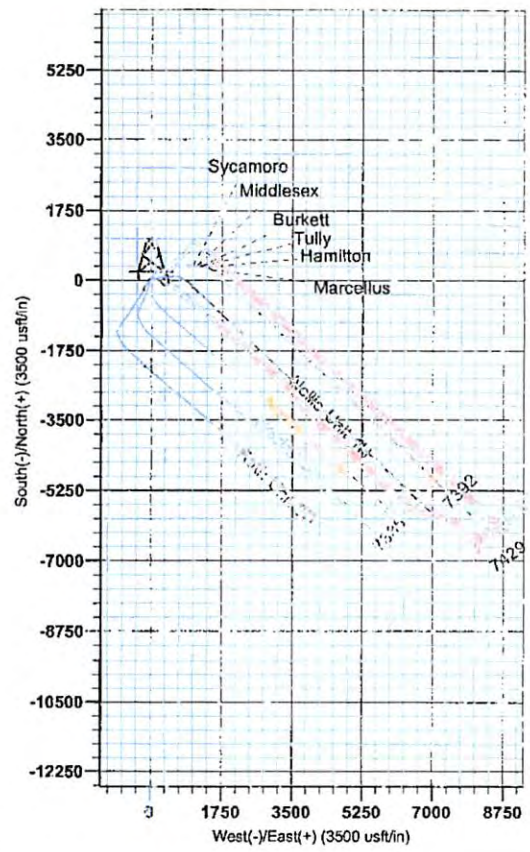
- Norris Unit 1H, Original Wellpath, As Drilled VO
- Norris Unit 2H, Original Wellpath, As Drilled VO
- Nellie Unit 1H, Original Wellpath, As Drilled VO
- Ruth Unit 2H, Original Wellpath, As Drilled VO
- Nellie Unit 2H, Original Wellpath, Plan 6 VO
- As Drilled

DESIGN TARGET DETAILS

Name	TVD	+N/ S	+E/-W	Northing	Easting	Latitude	Longitude
SHL Nellie Unit 2H	0.0	0.0	0.0	14254504.12	1764874.9699	15° 2' 262 180° 33' 37.259 W	
Actual DHL, Nellie Unit 2H	7428.7	8292.1	8443.4	4248212.01	1773318.33	39° 14' 9.631 180° 31' 50.303 W	



To convert Magnetic North to Grid, Subtract 8.87°
 To convert True North to Grid, Subtract 0.26°
 Azimuths to Grid North
 True North: -0.26°
 Magnetic North: -8.87°
 Magnetic Field
 Strength: 52348.7nT
 Dip Angle: 66.83°
 Date: 8/19/2013
 Model: IGRF2010



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 2/11/2016

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Antero Resources

**Harrison County West Virginia
Ruth/Norris/Nellie/Ford Pad
Nellie Unit 2H
Original Wellpath**

Design: As Drilled

EOW Completion Report

13 June, 2014



Scientific Drilling

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03/10/2017



EOW Completion Report



Company: Antero Resources
Project: Harrison County West Virginia
Site: Ruth/Norris/Nellie/Ford Pad
Well: Nellie Unit 2H
Wellbore: Original Wellpath
Design: As Drilled

Local Co-ordinate Reference: Well Nellie Unit 2H
TVD Reference: Nellie Unit 2H GL 1376' + 24' RKB @ 1400.0usft
MD Reference: Nellie Unit 2H GL 1376' + 24' RKB @ 1400.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Oklahoma District

Project	Harrison County West Virginia, Harrison County, USA		
Map System:	Universal Transverse Mercator (US Survey Fee	System Datum:	Mean Sea Level
Geo Datum:	NAD 1927 (NADCON CONUS)		
Map Zone:	Zone 17N (84 W to 78 W)		

Site Ruth/Norms/Nellie/Ford Pad

Site Position:
From: Map
Position Uncertainty: 2.0 usft
Northing: 14,254,530.66 usft
Easting: 1,764,845.07 usft
Slot Radius: 13-3/16"
Latitude: 39° 15' 12.526 N
Longitude: 80° 33' 37.638 W
Grid Convergence: 0.28 °

Well Nellie Unit 2H, Marcellus

Well Position
From: +N/-S 0.0 usft
Position Uncertainty 2.0 usft
Wellhead Elevation: 1,400.0 usft
Northing: 14,254,504.12 usft
Easting: 1,764,874.96 usft
Latitude: 39° 15' 12.262 N
Longitude: 80° 33' 37.259 W
Ground Level: 1,376.0 usft

Wellbore Original Wellpath

Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	8/19/2013	-8.59	66.83	52,349

Design As Drilled

Audit Notes:

Version: 1.0
Phase: ACTUAL
Tie On Depth: 0.0

Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.0	0.0	0.0	133.48

Survey Program Date 6/13/2014

From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description
100.0	7,087.0	Survey #6 Def Gyro To KOP (Original Well)	SDI Standard Keeper	Scientific Drilling Intl. Standard Wireline Keeper
7,200.0	17,455.0	Survey #7 MWD (Original Wellpath)	MWD SDI	MWD - Standard ver 1.0.1

Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00
100.0	0.09	347.92	100.0	0.1	0.0	-0.1	0.09
200.0	0.05	89.10	200.0	0.2	0.0	-0.1	0.11
300.0	0.05	131.40	300.0	0.1	0.1	0.0	0.04
400.0	0.13	148.48	400.0	0.0	0.2	0.1	0.08
500.0	0.10	118.20	500.0	-0.1	0.3	0.3	0.07
600.0	0.11	134.89	600.0	-0.2	0.5	0.5	0.03
700.0	0.13	174.85	700.0	-0.4	0.5	0.7	0.08
800.0	0.06	182.23	800.0	-0.6	0.5	0.8	0.07
900.0	0.09	209.30	900.0	-0.7	0.5	0.9	0.05
1,000.0	0.11	137.53	1,000.0	-0.9	0.5	1.0	0.12

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EOW Completion Report



Company: Antero Resources
Project: Harrison County West Virginia
Site: Ruth/Norris/Nellie/Ford Pad
Well: Nellie Unit 2H
Wellbore: Original Wellpath
Design: As Drilled

Local Co-ordinate Reference: Well Nellie Unit 2H
TVD Reference: Nellie Unit 2H GL 1376' + 24' RKB @ 1400.0usft
MD Reference: Nellie Unit 2H GL 1376' + 24' RKB @ 1400.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Oklahoma District

Survey

MD (usft)	Inc (")	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
1,100.0	0.15	145.29	1,100.0	-1.0	0.7	1.2	0.04
1,200.0	0.13	152.65	1,200.0	-1.2	0.8	1.4	0.03
1,300.0	0.15	165.42	1,300.0	-1.5	0.9	1.7	0.04
1,400.0	0.15	155.67	1,400.0	-1.7	1.0	1.9	0.03
1,500.0	0.18	163.89	1,500.0	-2.0	1.1	2.1	0.04
1,600.0	0.20	153.80	1,600.0	-2.3	1.2	2.4	0.04
1,700.0	0.10	155.51	1,700.0	-2.5	1.3	2.7	0.10
1,800.0	0.13	188.17	1,800.0	-2.7	1.3	2.8	0.07
1,900.0	0.25	173.47	1,900.0	-3.0	1.3	3.1	0.13
2,000.0	0.20	192.31	2,000.0	-3.4	1.3	3.3	0.09
2,100.0	0.24	170.41	2,100.0	-3.8	1.3	3.6	0.09
2,200.0	0.10	174.12	2,200.0	-4.1	1.4	3.8	0.14
2,300.0	0.32	173.29	2,300.0	-4.5	1.4	4.1	0.22
2,400.0	0.09	149.17	2,400.0	-4.8	1.5	4.4	0.24
2,500.0	0.15	139.35	2,500.0	-5.0	1.6	4.6	0.06
2,600.0	0.26	101.13	2,600.0	-5.1	1.9	4.9	0.17
2,700.0	0.61	85.42	2,700.0	-5.1	2.7	5.5	0.37
2,800.0	0.45	83.06	2,800.0	-5.0	3.6	6.1	0.16
2,900.0	0.38	97.52	2,900.0	-5.0	4.3	6.6	0.13
3,000.0	0.58	88.24	3,000.0	-5.1	5.1	7.2	0.21
3,100.0	0.39	111.13	3,100.0	-5.2	6.0	7.9	0.27
3,200.0	0.16	119.87	3,200.0	-5.4	6.4	8.3	0.23
3,300.0	0.29	102.94	3,300.0	-5.5	6.8	8.7	0.14
3,400.0	0.22	141.48	3,400.0	-5.7	7.1	9.1	0.18
3,500.0	0.22	141.84	3,500.0	-6.0	7.4	9.5	0.00
3,600.0	0.14	174.38	3,600.0	-6.3	7.5	9.8	0.13
3,700.0	0.13	142.69	3,700.0	-6.5	7.6	10.0	0.07
3,800.0	0.20	104.65	3,800.0	-6.6	7.8	10.2	0.13
3,900.0	0.18	76.57	3,900.0	-6.6	8.1	10.5	0.09
4,000.0	2.95	8.98	3,999.9	-4.0	8.7	9.1	2.89
4,100.0	6.35	12.26	4,099.6	3.9	10.3	4.8	3.41
4,200.0	9.33	20.90	4,198.6	16.9	14.3	-1.2	3.20
4,300.0	12.02	29.23	4,296.9	33.6	22.3	-6.9	3.09
4,400.0	15.44	30.45	4,394.0	54.1	34.1	-12.5	3.43
4,500.0	18.58	31.10	4,489.6	79.2	49.1	-18.9	3.15
4,600.0	19.39	31.73	4,584.2	107.0	66.1	-25.7	0.84
4,700.0	19.32	37.66	4,678.6	134.2	84.9	-30.7	1.97
4,800.0	20.43	43.82	4,772.6	159.9	107.1	-32.3	2.37
4,900.0	21.74	48.98	4,865.9	184.7	133.2	-30.4	2.27
5,000.0	23.08	53.91	4,958.4	208.4	163.0	-25.1	2.31
5,100.0	23.73	61.24	5,050.2	229.6	196.5	-15.4	2.98
5,200.0	24.00	71.34	5,141.7	245.8	233.4	0.2	4.09
5,300.0	25.95	78.37	5,232.3	256.7	274.1	22.3	3.55
5,400.0	25.29	83.88	5,322.5	263.4	316.8	48.6	2.47

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Wellbore: Original Wellpath
Design: As Drilled

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MD Reference: Nellie Unit 2H GL 1376' + 24' RKB @ 1400.0usft
North Reference: Grid
Survey Calculation Method: Minimum Curvature
Database: Oklahoma District

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5,500.0	23.99	89.27	5,413.4	265.9	358.4	77.0	2.59
5,600.0	24.17	93.67	5,504.7	264.9	399.1	107.3	1.80
5,700.0	22.47	85.41	5,596.6	265.1	438.6	135.8	3.68
5,800.0	21.88	74.52	5,689.2	271.6	475.6	158.2	4.15
5,900.0	20.73	72.57	5,782.4	281.9	510.5	176.4	1.35
6,000.0	22.58	71.82	5,875.3	293.2	545.6	194.2	1.87
6,100.0	22.59	73.02	5,967.6	304.8	582.2	212.8	0.46
6,200.0	23.90	75.53	6,059.5	315.5	620.2	233.0	1.64
6,300.0	26.16	81.79	6,150.1	323.7	661.7	257.4	3.48
6,400.0	28.18	81.50	6,239.1	330.3	706.8	285.6	2.02
6,500.0	28.13	76.49	6,327.3	339.3	753.1	313.0	2.36
6,600.0	28.10	74.92	6,415.5	350.9	798.8	338.1	0.74
6,700.0	28.20	77.20	6,503.7	362.3	844.6	363.5	1.08
6,800.0	28.54	84.18	6,591.7	370.0	891.4	392.2	3.33
6,900.0	28.48	91.31	6,679.6	371.8	939.0	425.5	3.40
7,000.0	26.48	95.36	6,768.3	369.2	985.0	460.7	2.74
7,087.0	26.70	94.00	6,846.1	366.0	1,023.8	491.0	0.74
7,120.0	26.41	92.88	6,875.6	365.1	1,038.6	502.3	1.75
Sycamore							
7,200.0	25.76	90.07	6,947.5	364.2	1,073.7	528.5	1.75
7,273.0	24.18	92.62	7,013.6	363.5	1,104.5	551.3	2.62
7,320.0	22.34	94.20	7,056.8	362.4	1,123.1	565.5	4.13
7,367.0	22.25	94.90	7,100.3	361.0	1,140.8	579.4	0.60
7,379.0	22.59	94.57	7,111.4	360.6	1,145.4	583.0	2.99
Middlesex							
7,414.0	23.57	93.67	7,143.6	359.7	1,159.1	593.6	2.99
7,444.0	27.35	94.73	7,170.7	358.7	1,171.9	603.5	12.69
7,474.0	30.60	97.28	7,196.9	357.2	1,186.4	615.1	11.59
7,504.0	33.68	98.16	7,222.3	355.0	1,202.2	628.0	10.38
7,534.0	37.46	99.21	7,246.7	352.4	1,219.4	642.4	12.76
7,564.0	39.57	102.64	7,270.2	348.8	1,237.8	658.1	10.01
7,567.0	39.80	102.90	7,272.5	348.4	1,239.6	659.8	9.32
Burkett							
7,594.0	41.86	105.10	7,292.9	344.1	1,256.8	675.1	9.32
7,596.0	42.07	105.34	7,294.4	343.8	1,258.0	676.3	13.27
Tully							
7,624.0	45.11	108.44	7,314.7	338.2	1,276.5	693.6	13.27
7,654.0	49.33	106.15	7,335.1	331.6	1,297.5	713.3	15.14
7,684.0	52.32	105.80	7,354.0	325.2	1,319.9	733.9	10.01
7,714.0	55.22	105.36	7,371.8	318.7	1,343.2	755.3	9.74
7,730.0	56.91	106.65	7,380.7	315.1	1,356.0	767.1	12.48
Hamilton							
7,744.0	58.39	107.74	7,388.2	311.6	1,367.3	777.7	12.48
7,774.0	62.17	109.76	7,403.0	303.2	1,391.9	801.4	13.89
7,804.0	64.61	112.46	7,416.4	293.5	1,416.9	826.2	11.97

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7,834.0	67.01	112.86	7,428.7	283.0	1,442.2	851.8	7.35
7,864.0	70.08	115.21	7,439.7	271.7	1,467.7	878.1	12.93
7,888.0	71.83	118.88	7,447.5	261.4	1,487.9	899.8	16.18
Marcellus							
7,894.0	72.28	119.78	7,449.3	258.6	1,492.9	905.4	16.18
7,924.0	75.27	121.10	7,457.7	244.0	1,517.8	933.4	10.82
7,954.0	77.47	123.47	7,464.8	228.4	1,542.4	962.0	10.62
7,984.0	80.46	124.17	7,470.5	212.0	1,566.9	991.1	10.23
8,014.0	82.39	125.84	7,475.0	195.0	1,591.2	1,020.4	8.47
8,044.0	85.65	128.39	7,478.1	177.0	1,614.9	1,050.0	13.77
8,102.0	91.45	132.96	7,479.6	139.2	1,658.9	1,107.9	12.73
8,166.0	90.84	130.50	7,478.3	96.6	1,706.6	1,171.9	3.96
8,260.0	89.25	133.05	7,478.2	34.0	1,776.7	1,265.8	3.20
8,354.0	89.34	132.43	7,479.4	-29.8	1,845.8	1,359.8	0.67
8,448.0	89.60	133.58	7,480.3	-93.9	1,914.5	1,453.8	1.25
8,542.0	89.96	134.37	7,480.6	-159.2	1,982.1	1,547.8	0.92
8,636.0	89.87	133.31	7,480.8	-224.3	2,049.9	1,641.8	1.13
8,730.0	90.40	131.20	7,480.6	-287.5	2,119.5	1,735.7	2.31
8,824.0	90.22	131.82	7,480.0	-349.8	2,189.9	1,829.7	0.69
8,918.0	89.52	131.82	7,480.3	-412.4	2,260.0	1,923.7	0.74
9,012.0	89.78	133.23	7,480.8	-476.0	2,329.2	2,017.6	1.53
9,106.0	88.90	135.42	7,481.9	-541.6	2,396.5	2,111.6	2.51
9,200.0	88.46	135.16	7,484.1	-608.4	2,462.6	2,205.5	0.54
9,294.0	89.87	136.21	7,485.4	-675.7	2,528.2	2,299.5	1.87
9,388.0	91.80	138.15	7,484.1	-744.6	2,592.1	2,393.2	2.91
9,482.0	91.71	134.63	7,481.2	-812.6	2,656.9	2,487.1	3.74
9,576.0	91.01	132.52	7,479.0	-877.4	2,725.0	2,581.0	2.36
9,670.0	91.10	132.08	7,477.2	-940.7	2,794.5	2,675.0	0.48
9,764.0	91.10	131.20	7,475.4	-1,003.1	2,864.7	2,768.9	0.94
9,858.0	90.48	132.96	7,474.1	-1,066.1	2,934.5	2,862.9	1.98
9,952.0	89.60	131.82	7,474.1	-1,129.5	3,003.9	2,956.9	1.53
10,046.0	91.10	134.19	7,473.5	-1,193.6	3,072.6	3,050.9	2.98
10,140.0	91.63	132.79	7,471.3	-1,258.2	3,140.8	3,144.8	1.59
10,231.0	90.57	134.90	7,469.5	-1,321.3	3,206.4	3,235.8	2.59
10,321.0	90.57	134.37	7,468.6	-1,384.5	3,270.5	3,325.8	0.59
10,412.0	90.84	134.28	7,467.5	-1,448.1	3,335.6	3,416.8	0.31
10,503.0	90.57	133.40	7,466.4	-1,511.1	3,401.2	3,507.7	1.01
10,594.0	90.31	134.72	7,465.7	-1,574.4	3,466.6	3,598.7	1.48
10,684.0	90.31	134.37	7,465.2	-1,637.5	3,530.7	3,688.7	0.39
10,775.0	89.43	131.38	7,465.4	-1,699.4	3,597.4	3,779.7	3.43
10,866.0	89.69	131.20	7,466.1	-1,759.5	3,665.8	3,870.6	0.35
10,957.0	89.69	134.10	7,466.6	-1,821.1	3,732.7	3,961.6	3.19
11,048.0	89.78	136.13	7,467.0	-1,885.6	3,796.9	4,052.6	2.23
11,139.0	89.43	135.60	7,467.6	-1,950.9	3,860.3	4,143.5	0.70
11,230.0	90.04	135.25	7,468.1	-2,015.7	3,924.2	4,234.4	0.77

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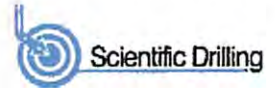
Survey

MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
11,324.0	90.57	131.29	7,467.6	-2,080.1	3,892.3	4,328.4	4.25
11,418.0	90.92	130.41	7,466.3	-2,141.6	4,063.7	4,422.3	1.01
11,512.0	91.28	132.70	7,464.5	-2,203.9	4,134.0	4,516.2	2.47
11,606.0	91.01	134.54	7,462.7	-2,268.8	4,202.0	4,610.2	1.98
11,698.0	91.01	133.58	7,461.0	-2,332.7	4,268.1	4,702.2	1.04
11,791.0	90.40	132.50	7,459.9	-2,396.2	4,336.1	4,795.2	1.33
11,885.0	90.92	133.49	7,458.8	-2,460.3	4,404.9	4,889.2	1.19
11,980.0	91.10	133.49	7,457.1	-2,525.7	4,473.8	4,984.1	0.19
12,074.0	89.96	134.02	7,456.3	-2,590.7	4,541.7	5,078.1	1.34
12,168.0	90.22	134.98	7,456.1	-2,656.6	4,608.7	5,172.1	1.06
12,262.0	90.40	135.07	7,455.6	-2,723.1	4,675.1	5,266.1	0.21
12,356.0	90.84	134.98	7,454.6	-2,789.5	4,741.6	5,360.1	0.48
12,450.0	90.92	130.32	7,453.1	-2,853.2	4,810.7	5,454.0	4.96
12,543.0	90.84	129.45	7,451.7	-2,912.8	4,882.0	5,546.8	0.94
12,637.0	90.75	130.32	7,450.4	-2,973.1	4,954.2	5,640.6	0.93
12,731.0	90.40	134.19	7,449.5	-3,036.3	5,023.7	5,734.6	4.13
12,825.0	89.34	135.86	7,449.7	-3,102.8	5,090.2	5,828.5	2.10
12,919.0	91.98	135.69	7,448.6	-3,170.1	5,155.7	5,922.4	2.81
13,013.0	92.59	136.30	7,444.8	-3,237.7	5,221.0	6,016.3	0.92
13,107.0	92.15	133.40	7,441.0	-3,303.9	5,287.5	6,110.2	3.12
13,201.0	91.98	132.43	7,437.6	-3,367.9	5,356.3	6,204.1	1.05
13,295.0	91.63	131.82	7,434.6	-3,430.9	5,426.0	6,298.0	0.75
13,388.0	90.48	132.61	7,432.9	-3,493.4	5,494.9	6,391.0	1.50
13,482.0	91.45	133.93	7,431.3	-3,557.8	5,563.3	6,485.0	1.74
13,576.0	91.19	132.87	7,429.1	-3,622.4	5,631.6	6,578.9	1.16
13,670.0	90.48	132.35	7,427.8	-3,686.0	5,700.8	6,672.9	0.94
13,764.0	91.54	133.75	7,426.1	-3,750.2	5,769.4	6,766.9	1.87
13,858.0	91.45	133.23	7,423.7	-3,814.8	5,837.6	6,860.9	0.56
13,953.0	90.48	134.37	7,422.1	-3,880.6	5,906.2	6,955.8	1.58
14,047.0	90.75	134.19	7,421.1	-3,946.2	5,973.5	7,049.8	0.35
14,141.0	91.01	132.52	7,419.6	-4,010.7	6,041.8	7,143.8	1.80
14,235.0	89.69	133.84	7,419.0	-4,075.0	6,110.3	7,237.8	1.99
14,329.0	90.13	133.66	7,419.2	-4,140.0	6,178.2	7,331.8	0.51
14,423.0	90.40	134.10	7,418.8	-4,205.2	6,246.0	7,425.8	0.55
14,517.0	90.48	133.49	7,418.0	-4,270.3	6,313.9	7,519.8	0.65
14,612.0	90.75	133.93	7,417.0	-4,335.9	6,382.5	7,614.8	0.54
14,705.0	88.81	133.84	7,417.4	-4,400.4	6,449.5	7,707.8	2.09
14,799.0	90.04	134.46	7,418.3	-4,465.8	6,517.0	7,801.8	1.47
14,893.0	90.57	135.25	7,417.8	-4,532.1	6,583.6	7,895.7	1.01
14,987.0	89.87	133.58	7,417.5	-4,597.9	6,650.8	7,989.7	1.93
15,081.0	90.57	132.70	7,417.1	-4,662.2	6,719.3	8,083.7	1.20
15,175.0	90.75	131.56	7,416.0	-4,725.2	6,789.1	8,177.7	1.23
15,269.0	90.31	133.23	7,415.1	-4,788.6	6,858.5	8,271.7	1.84
15,364.0	91.20	134.24	7,413.8	-4,854.3	6,927.1	8,366.6	1.47

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MD (usft)	Inc (°)	Azi (azimuth) (°)	TVD (usft)	N/S (usft)	E/W (usft)	V. Sec (usft)	DLeg (°/100usft)
15,456.0	87.28	130.82	7,415.0	-4,916.4	6,994.9	8,458.6	5.72
15,551.0	88.56	131.93	7,418.4	-4,979.2	7,066.1	8,553.5	1.78
15,644.0	88.49	133.57	7,420.8	-5,042.3	7,134.4	8,646.4	1.76
15,738.0	89.87	133.66	7,422.2	-5,107.1	7,202.4	8,740.4	1.47
15,832.0	89.96	131.99	7,422.3	-5,171.0	7,271.4	8,834.4	1.78
15,926.0	88.69	130.75	7,423.4	-5,233.2	7,341.9	8,928.3	1.89
16,020.0	88.42	131.68	7,425.8	-5,295.1	7,412.6	9,022.2	1.03
16,114.0	88.25	134.82	7,428.5	-5,359.4	7,481.0	9,116.2	3.34
16,208.0	87.79	134.94	7,431.8	-5,425.7	7,547.6	9,210.1	0.51
16,303.0	88.29	135.51	7,435.0	-5,493.1	7,614.5	9,305.0	0.80
16,396.0	88.81	134.63	7,437.4	-5,558.9	7,680.1	9,397.9	1.10
16,490.0	89.09	132.97	7,439.1	-5,624.0	7,747.9	9,491.9	1.79
16,585.0	89.70	133.65	7,440.1	-5,689.2	7,817.1	9,586.9	0.96
16,678.0	90.03	133.63	7,440.3	-5,753.3	7,884.4	9,679.9	0.36
16,772.0	88.99	133.70	7,441.1	-5,818.2	7,952.4	9,773.9	1.11
16,866.0	89.09	133.79	7,442.7	-5,883.2	8,020.3	9,867.9	0.14
16,960.0	90.44	133.75	7,443.1	-5,948.2	8,088.1	9,961.9	1.44
17,053.0	90.60	133.43	7,442.2	-6,012.4	8,155.5	10,054.9	0.38
17,147.0	91.24	132.77	7,440.7	-6,076.6	8,224.1	10,148.8	0.98
17,241.0	91.68	132.96	7,438.3	-6,140.5	8,293.0	10,242.8	0.51
17,336.0	93.02	134.01	7,434.4	-6,205.8	8,361.9	10,337.7	1.79
17,397.0	93.09	134.48	7,431.2	-6,248.3	8,405.5	10,398.6	0.78
17,455.0	91.85	143.80	7,428.7	-6,292.1	8,443.4	10,456.2	16.20

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
7,120.0	6,875.6	365.1	1,038.6	Sycamore
7,379.0	7,111.4	360.6	1,145.4	Middlesex
7,567.0	7,272.5	348.4	1,239.6	Burkett
7,596.0	7,294.4	343.8	1,258.0	Tully
7,730.0	7,380.7	315.1	1,356.0	Hamilton
7,888.0	7,447.5	261.4	1,487.9	Marcellus

Checked By: _____ Approved By: _____ Date: _____

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State of West Virginia
Department of Environmental Protection - Office of Oil and Gas
Discharge Monitoring Report
Oil and Gas General Permit

Company Name: Antero Resources Corporation
API No: 047-033-05687 County: Harrison
District: Tenmile Well No: Nellie Unit 2H
Farm Name: Hubert Jr. & Lorena Bland
Discharge Date/s From:(MMDDYY) - _____ To: (MMDDYY) - _____
Discharge Times. From: - _____ To: - _____
Total Volume to be Disposed from this facility (gallons): N/A - Not Completed
Disposal Option(s) Utilized (write volumes in gallons):


- (1) Land Application: - _____ (Include a topographical map of the Area.)
- (2) UIC: - _____ Permit No. - _____
- (3) Offsite Disposal: - _____ Site Location: - _____
- (4) Reuse: - _____ Alternate Permit Number: - _____
- (5) Centralized Facility: - _____ Permit No. - _____
- (6) Other method: - _____ (Include an explanation)

Follow Instructions below to determine your treatment category:

- Optional Pretreatment test: n/a Cl- mg/l n/a DO mg/l
1. Do you have permission to use expedited treatment from the Director or his representative?
(Y/N) N If yes, who? _____ and place a four (4) on line 7.
If not go to line 2
 2. Was Frac Fluid or flowback put into the pit? (Y/N) Y If yes, go to line 5. If not, go to line 3.
 3. Do you have a chloride value pretreatment (see above)? (Y/N) N If yes, go to line 4
If not, go to line 5.
 4. Is the Chloride level less than 5000 mg/l? (Y/N) n/a If yes, then enter a one (1) on line 7.
 5. Do you have a pretreatment value for DO? (See above) (Y/N) N If yes, go to line 6
If not, enter a three (3) in line 7.
 6. Is the DO level greater than 2.5 mg/l?(Y/N) n/a If yes, enter a two (2) on line 7. If not, enter a three (3) on line 7.
 7. 3 is the category of your pit. Use the Appropriate section.
 8. Comments on Pit condition: Pit Condition is Good

Name of Principal Exec. Officer: Shawn Donovan
Title of Officer: Environmental Specialist III
Date Completed: 11/14/16

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this document and all the 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.


Signature of a Principal Exec. Officer or Authorized Agent
WV Department of Environmental Protection
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Category 1
Sampling Results
API No : _____

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	5	_____	N/A	N/A	Days
Fe	6	_____	6	_____	mg/l
D.O.	2.5	_____	2.5	_____	mg/l
Settleable Sol.	0.5	_____	0.5	_____	mg/l
Cl	5,000	_____	5,000	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**		_____	Monitor	_____	mg/l
Oil and Grease		_____	Monitor	_____	mg/l
Total Al***		_____	Monitor	_____	mg/l
TSS		_____	Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume		_____	Monitor	_____	Gal
Flow		_____	Monitor	_____	Gal/min
Disposal Area		_____	Monitor	_____	Acres

*** Al is only reported if the pH is above 9.0

Category 2
Sampling Results
API No : _____

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	10	_____	N/A	N/A	Days
Fe	6	_____	6	_____	mg/l
D.O.	2.5	_____	2.5	_____	mg/l
Settleable Sol.	0.5	_____	0.5	_____	mg/l
Cl*	12,500	_____	12,500	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**		_____	Monitor	_____	mg/l
Oil and Grease		_____	Monitor	_____	mg/l
Total Al***		_____	Monitor	_____	mg/l
TSS		_____	Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume		_____	Monitor	_____	Gal
Flow		_____	Monitor	_____	Gal/min
Disposal Area		_____	Monitor	_____	Acres

* Can be 25,000 with inspector's approval,

(Inspector's signature): _____

** Include a description of your aeration technique.

*** Al is only reported if the pH is above 9.0

Date: _____
Aeration Code: WV Department of
Environmental Protection

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Category 3
Sampling Results
API No : _____

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	20	_____	N/A	N/A	Days
Fe	6	_____	6	_____	mg/l
D.O.	2.5	_____	2.5	_____	mg/l
Settleable Sol.	0.5	_____	0.5	_____	mg/l
Cl*	12,500	_____	12,500	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**		_____	Monitor	_____	mg/l
Oil and Grease		_____	Monitor	_____	mg/l
Total Al***		_____	Monitor	_____	mg/l
TSS		_____	Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume		_____	Monitor	_____	Gal
Flow		_____	Monitor	_____	Gal/min
Disposal Area		_____	Monitor	_____	Acres

* Can be 25,000 with inspector's approval,

(Inspector's signature): _____

Date: _____

** Include a description of your aeration technique.

Aeration Code: _____

*** Al is only reported if the pH is above 9.0.

Category 4
Sampling Results
API No: _____

Parameter	Predischarge		Discharge		Units
	Limits	Reported	Limits	Reported	
pH	6-10	_____	6-10	_____	S.U
Settling Time	1	_____	N/A	N/A	Days
Fe	Monitor	_____	Monitor	_____	mg/l
D.O.	Monitor	_____	Monitor	_____	mg/l
Settleable Sol.	Monitor	_____	Monitor	_____	mg/l
Cl*	12,500	_____	12,500	_____	mg/l
Oil	Trace	_____	Trace	_____	Obs.
TOC**		_____	Monitor	_____	mg/l
Oil and Grease		_____	Monitor	_____	mg/l
TSS		_____	Monitor	_____	mg/l
Total Mn	Monitor	_____	Monitor	_____	mg/l
Volume		_____	Monitor	_____	Gal
Flow		_____	Monitor	_____	Gal/min
Activated Carbon (0.175)		_____	N/A	N/A	mg/l
Date Site Reclaimed	N/A	N/A			Acres
Disposal Area		_____	Monitor	_____	Acres

* Can be 25,000 with inspector's approval,

(Inspector's signature): _____

Date: _____

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API Number 47 - 033 - 05687

Operator's Well No. Nellie 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) Tennile Creek Quadrangle Salem & Big Isaac

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 *Please note the As-Built design shows an affected area from an associated frac pit; however, Antero received a Certificate of Approval to convert to the Hubert Centralized Waste Water Pit (033-WPC-0001) on 7/15/16.

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); Northwestern Landfill Permit #SWF-1025/WV0109410
- Other (Explain _____)

*SDW
12/7/2016*

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/Sluff Foam, Production - Water Based Mud

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

Additives to be used in drilling medium? Please See Attachment

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

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

-Landfill or offsite name/permit number? Meadowfill Landfill (Permit #SWF-1032-98), Northwestern Landfill (Permit # SWF-1025/WV0109410)

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

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

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

Company Official Signature *Cole Kilstrom*

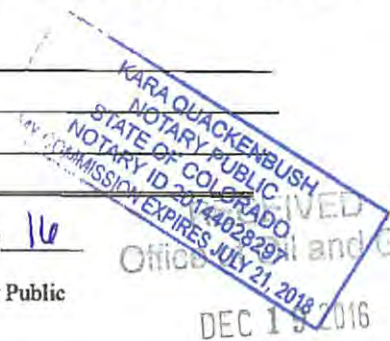
Company Official (Typed Name) Cole Kilstrom

Company Official Title Environmental & Regulatory Manager

Subscribed and sworn before me this 18 day of November, 20 16

Kara Quackenbush Notary Public

My commission expires July 21, 2018



Office of Oil and Gas
DEC 15 2016
WV Department of Environmental Protection

Antero Resources Corporation

Proposed Revegetation Treatment: Acres Disturbed 20.73 Existing Acres Prevegetation pH _____

Lime 2-4 Tons/acre or to correct to pH 6.5

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

Fertilizer amount 500 lbs/acre

Mulch 2-3 Tons/acre

Existing Drill Pad (3.22) + Existing Spoil Piles (6.68) + Existing Access Road (5.6) + Existing Frac Pit Access Road (1.71) + Existing Frac Pit (3.52) = 20.73 Existing Acres

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/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: [Signature]

Comments: Upgrade ETS if/as needed per WV DEP ETS manual.

Title: COG Inspector

Date: 12/7/2016

Field Reviewed? Yes No

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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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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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911 Address
3528 Raccoon Run Rd.
Salem, WV 26426

Well Site Safety Plan

Antero Resources

Well Name: April Unit 1H, April Unit 2H, Ford Unit 1H, Ford Unit 2H, Lee Unit 1H, Lee Unit 2H, Nellie Unit 1H, Nellie Unit 2H, Norris Unit 1H, Norris Unit 2H

SDC
12/7/2016

Pad Location: HUBERT PAD
 Harrison County/Tenmile District

GPS Coordinates:

Entrance - Lat 39°15'10.37"/Long -80°33'09.28" (NAD83)

Pad Center - Lat 39°15'12.65"/Long -80°33'36.70" (NAD83)

Driving Directions:

From the intersection of I-50 and I-79, go 14.7 miles towards the town of Salem. Once near the town of Salem head south on County Rd 50/73 for 1.2 miles. Continue onto South St for 0.2 miles. Continue onto Patterson Rd for 0.2 miles. Continue onto Co Route 29/Patterson Fork Rd for 0.2 miles. Continue onto Salem Country Club Rd for 0.4 miles. Salem Country Club Rd turns slightly right and becomes Co Route 29/Patterson Fork Rd for 0.9 miles. Turn left onto Co Route 29/2 for 1 mile. Take a sharp right onto Raccoon Run Rd for 0.2 miles. Lease road will be on your right.

From the Volunteer Fire Department in Salem: Head east on W Main St toward Water Street for 0.3 miles. Turn right onto South St for 0.5 miles. Continue onto Patterson Fork Rd for 0.2 miles. Continue onto Salem Country Club Rd for 0.4 miles. Salem Country Club becomes Patterson Fork Rd, continue for 0.9 miles. Turn left onto Co Rte 29/2 for 1.0 mile. Turn right onto Raccoon Run Rd for 0.2 miles. The access road will be on the right.

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

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03/10/2017

4703305687F



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

November 18, 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: Nellie Unit 2H (API# 47-033-05687)
Quadrangle: Salem & Big Isaac
Harrison County/Tenmile District, West Virginia

Mr. Martin:

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

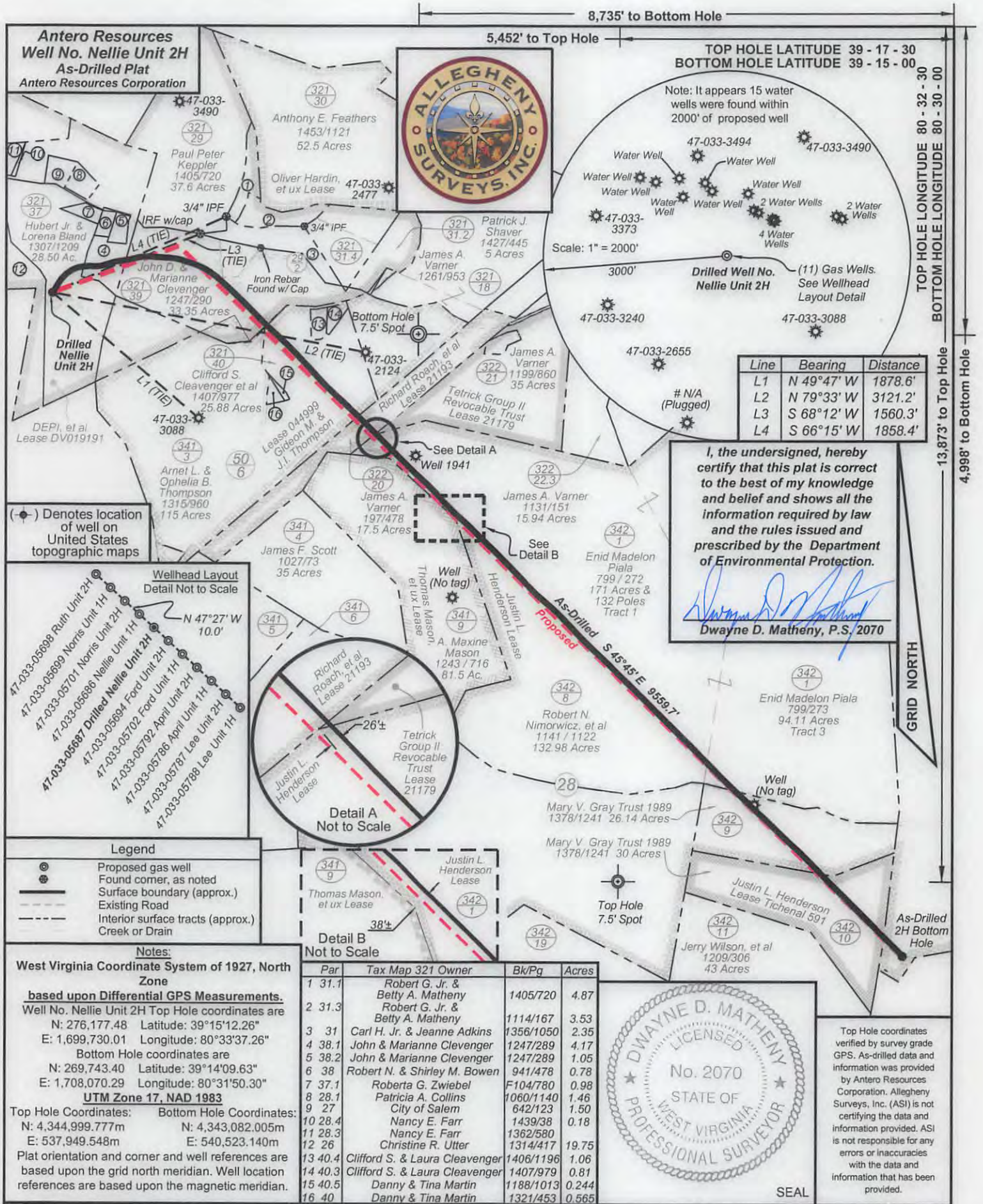
Sincerely,

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

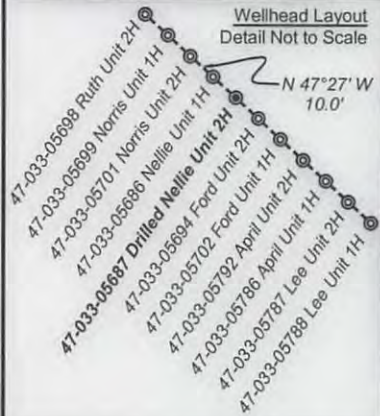
Tim Rady
Director, Land Operations - Marcellus

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03/10/2017



(-●-) Denotes location of well on United States topographic maps



Legend

- Proposed gas well
- Found corner, as noted
- Surface boundary (approx.)
- - - Existing Road
- - - Interior surface tracts (approx.)
- Creek or Drain

Notes:
West Virginia Coordinate System of 1927, North Zone
based upon Differential GPS Measurements.
Well No. Nellie Unit 2H Top Hole coordinates are
N: 276,177.48 Latitude: 39°15'12.26"
E: 1,699,730.01 Longitude: 80°33'37.26"
Bottom Hole coordinates are
N: 269,743.40 Latitude: 39°14'09.63"
E: 1,708,070.29 Longitude: 80°31'50.30"
UTM Zone 17, NAD 1983
Top Hole Coordinates: Bottom Hole Coordinates:
N: 4,344,999.777m N: 4,343,082.005m
E: 537,949.548m E: 540,523.140m
Plat orientation and corner and well references are based upon the grid north meridian. Well location references are based upon the magnetic meridian.

Par	Tax Map	321 Owner	Bk/Pq	Acres
1	31.1	Robert G. Jr. & Betty A. Matheny	1405/720	4.87
2	31.3	Robert G. Jr. & Betty A. Matheny	1114/167	3.53
3	31	Carl H. Jr. & Jeanne Adkins	1356/1050	2.35
4	38.1	John & Marianne Clevenger	1247/289	4.17
5	38.2	John & Marianne Clevenger	1247/289	1.05
6	38	Robert N. & Shirley M. Bowen	941/478	0.78
7	37.1	Roberta G. Zwiebel	F104/780	0.98
8	28.1	Patricia A. Collins	1060/1140	1.46
9	27	City of Salem	642/123	1.50
10	28.4	Nancy E. Farr	1439/38	0.18
11	28.3	Nancy E. Farr	1362/580	
12	26	Christine R. Ulter	1314/417	19.75
13	40.4	Clifford S. & Laura Clevenger	1406/1196	1.06
14	40.3	Clifford S. & Laura Clevenger	1407/979	0.81
15	40.5	Danny & Tina Martin	1188/1013	0.244
16	40	Danny & Tina Martin	1321/453	0.565



FILE NO: 70-36-U-12
DRAWING NO: 70-12 Nellie Drilled 2H
SCALE: 1" = 1200'
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: March 3 2017
OPERATOR'S WELL NO. Nellie Unit 2H
API WELL NO
47 - 033 - 05687 F
STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
LOCATION: ELEVATION: Original - 1398' Existing - 1376' WATERSHED: Tenmile Creek QUADRANGLE: Salem & Big Isaac
DISTRICT: Tenmile COUNTY: Harbo
SURFACE OWNER: Hubert Jr. & Lorena Bland Justin L. Henderson; Tetrick Group II Revocable Trust; Tichenal 591; 21193; ACREAGE: 28.50 36; 17.50; 283;
ROYALTY OWNER: DEPI, et al; Gideon M. & J.I. Thompson; Richard Roach, et al LEASE NO: DV019191; 044999; ACREAGE: 30; 144; 1026.936
PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) _____ TVD 7,429'
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale DEPTH: MD 17,455'

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

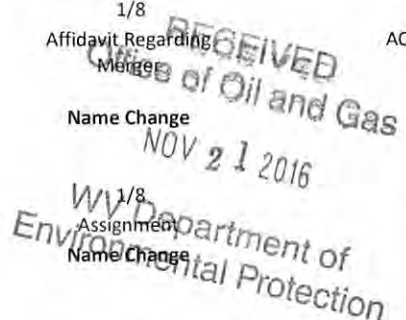
INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)

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>DEPI et al Lease DV 019191</u>			
Dominion Exploration & Production, Inc.	Dominion Appalachian Development, LLC	1/8	1424/0184
Dominion Exploration & Production, Inc., Dominion Transmission, Inc. And Dominion Appalachian Development, LLC	Antero Resources Appalachian Corporation	Assignment	1424/0642
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Lease 044999 Gideon M. & J. I. Thompson</u>			
Gideon M. Thompson & J.I. Thompson	George H. Trainor	Flat Rate	0198/0196
George H. Trainor	Godfrey L. Cabot, Inc.	Assignment	0369/0328
Godfrey L. Cabot, Inc.	Hope Natural Gas Company	Assignment	0407/0438
Hope Natural Gas Company	Consolidated Gas Supply Corporation	Assignment	0903/0179
Consolidated Gas Supply Corporation	Consolidated Gas Transmission Corporation	Assignment	1136/0250
Consolidated Gas Transmission Corporation	CNG Transmission Corporation	Name Change	AOI 0051/0795
CNG Transmission Corporation	Dominion Transmission, Inc.	Name Change	AOI 0058/0362
Dominion Exploration & Production, Inc., Dominion Transmission, Inc. And Dominion Appalachian Development, LLC	Antero Resources Appalachian Corporation	Assignment	1423/1068
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Richard Roach, et al Lease 21193</u>			
Richard Roach, et al	Clarence W. Mutschelknaus	1/8	1437/0793
Clarence W. Mutschelknaus	Bluestone Energy Partners	Assignment	1439/0245
Bluestone Energy Partners	Antero Resources Bluestone, LLC, a wholly owned subsidiary of Antero Resources Appalachian Corporation	Affidavit Regarding Merger	AOI 0035/1236
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Tetrick Group II Revocable Trust Lease 21179</u>			
Tetrick Group II Revocable Trust	Bluestone Energy Partners	1/8	1425/0761
Bluestone Energy Partners	Antero Resources Bluestone, LLC, a wholly owned subsidiary of Antero Resources Appalachian Corporation	Affidavit Regarding Merger	AOI 0035/1236
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Justin L. Henderson Lease</u>			
Justin L. Henderson	Anvil Oil and Gas Company, Inc.	1/8	1477/0698
Anvil Oil and Gas Company, Inc.	Antero Resources Appalachian Corporation	Assignment	1478/0638
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1



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

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 –

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- (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
Thomas Mason, et ux			
Thomas mason & A. Maxine Mason	Berry Energy Consultants & Managers	1/8	1324/0770
Berry Energy Consultants & Managers	Berry Energy, Inc.	Name Change	AOI 0059/0404
Berry Energy, Inc.	Chesapeake Appalachia, LLC	Assignment	1456/0376
Chesapeake Appalachia, LLC	Statoil USA Onshore Properties, Inc.	Assignment	1474/0769
Statoil USA Onshore Properties, Inc.	Antero Resources Appalachian Corporation	Assignment	1514/1303
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1

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 WV Department of
 Environmental Protection

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

**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>Justin L. Henderson Lease Tichenal 591 Lease</u>				
	Justin L. Henderson	Anvil Oil and Gas Company, Inc.	1/8	1477/0698
	Anvil Oil and Gas Company, Inc.	Antero Resources Appalachian Corporation	Assignment	1478/0638
	Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1

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

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

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

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

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

Well Operator: Antero Resources Corporation
 By: Kevin Kilstrom
 Its: Senior VP of Production

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 Department of Environmental Protection

WW-60
(7-01)

DATE: November 18, 20 16

OPERATOR'S

WELL NO. Nellie Unit 2H

API NO: 47- 033 05687
State County Permit No.

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

A F F I D A V I T

State of Colorado

County of Denver

I, Tim Rady (the designated owner or operator, or authorized representative thereof), after being duly sworn, do declare that the undersigned is authorized by the owner of the working interest in the well permit application to which this affidavit is attached to state that (he, she, or it) shall tender to the owner of the oil and gas in place not less than one-eighth of the total amount paid to or received by or allowed to the owner of the working interest at the wellhead for the oil or gas so extracted, produced, or marketed before deducting the amount to be paid or set aside for the owner of the oil or gas in place, or all such oil or gas to be extracted, produced, or marketed from the well. West Virginia Code 22-6-8(e).

Signed: [Signature]

Taken, subscribed and sworn to before me this 18 day of November, 20 16.

[Signature]
Notary Public
RECEIVED
Office of Oil and Gas

My Commission expires: July 21, 2018

NOV 21 2016
WV Department of Environmental Protection
KARA QUACKENBUSH
NOTARY PUBLIC
STATE OF COLORADO
NOTARY ID 20144028297
MY COMMISSION EXPIRES JULY 21, 2018

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



Penny 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: 6/26/2008
- 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.

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Gas
NOV 21 2016
WV Department of Environmental Protection
Revised 4/13

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

Date of Notice Certification: 11/17/2016

API No. 47- 033 - 05687
Operator's Well No. Nellie Unit 2H
Well Pad Name: Existing Hubert 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>537949.548m</u>
County: <u>Harrison</u>	Northing: <u>4344999.777m</u>
District: <u>Tenmile</u>	Public Road Access: <u>CR 50/6</u>
Quadrangle: <u>Salem & Big Isaac</u>	Generally used farm name: <u>Hubert Jr. & Lorena Bland</u>
Watershed: <u>Tenmile 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>RECEIVED Office of Oil and Gas</p>
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Required Attachments:

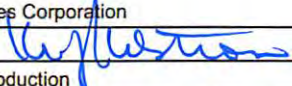
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been 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.

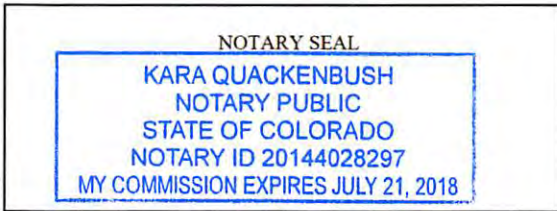
NOV 21 2016


West Virginia Department of Environmental Protection

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>kquackenbush@anteroresources.com</u>



Subscribed and sworn before me this 17 day of November 2016

 _____ Notary Public
 My Commission Expires July 21, 2018

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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 Office of Oil and Gas
 NOV 21 2016
 WV Department of
 Environmental Protection

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

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

Date of Notice: 11/18/2016 **Date Permit Application Filed:** 11/18/2016

Notice of:

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

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

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

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

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

SURFACE OWNER(s)
Name: PLEASE SEE ATTACHMENT
Address: _____

Name: _____
Address: _____

SURFACE OWNER(s) (Road and/or Other Disturbance)
Name: PLEASE SEE ATTACHMENT
Address: _____

Name: _____
Address: _____

SURFACE OWNER(s) (Impoundments or Pits)
Name: PLEASE SEE ATTACHMENT
Address: _____

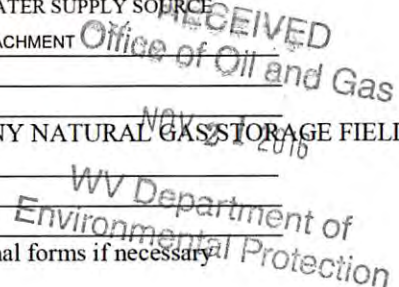
COAL OWNER OR LESSEE
Name: PLEASE SEE ATTACHMENT
Address: _____

COAL OPERATOR
Name: _____
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



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

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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.**

Time Limits and Methods for Filing Comments.

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

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

Comment Requirements

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

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

Permit Denial or Condition

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

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

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

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

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WW-6A
(8-13)

API NO. 47- 033 - 05687 **F**
OPERATOR WELL NO. Nellie Unit 2H
Well Pad Name: Existing Hubert Pad
47-033-05687

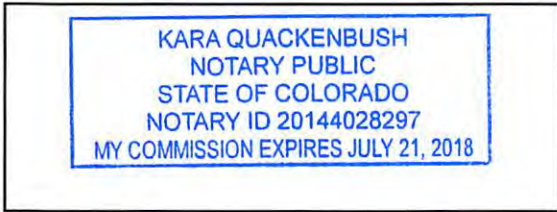
Notice is hereby given by:

Well Operator: Antero Resources Corporation
Telephone: (303) 357-7310
Email: kquackenbush@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 deprivacyofficer@wv.gov.



Subscribed and sworn before me this 18 day of November 2016
Kara Quackenbush Notary Public
My Commission Expires July 21, 2018

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03/10/2017

WW-6A Notice of Application Attachment (HUBERT PAD):**List of Surface Owner(s) with Proposed Disturbance associated with Hubert Well Pad:**

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

TM 321 PCL 26

Owner: Christine R. Utter
Address: RR 1 Box 304A
 Salem, WV 26426

Owner: Christine R. Utter (2nd Address)
Address: 3988 Halls Run Rd.
 Salem, WV 26426

TM 321 PCL 36

Owner: Tillman Lee Williams
Address: 1545 Flinderation Rd.
 Salem, WV 26426

Owner: Tillman Lee Williams
 (2nd Address)
Address: RR 5 Box 706
 Salem, WV 26426

TM 321 PCL 37

Owner: Hubert Jr. & Lorena Bland
Address: 3912 Halls Run Rd.
 Salem, WV 26426

Owner: Hubert Jr. & Lorena Bland
 (2nd Address)
Address: RR 1 Box 305
 Salem, WV 26426

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

TM 321 PCL 39

Owner: John D. & Marianne Clevenger
Address: RR 1 Box 308A
 Salem, WV 26426

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ROAD AND/OR OTHER DISTURBANCE (CONTINUED...)**TM 13 PCL 24.2**

Owner: Robert N. Nimorwicz & Donna Nimorwicz DaChunha
Address: 6816 Kingfisher Ct.
Frederick, MD 21703

TM 341 PCL 3

Owner: Arnet L. Thompson
Address: 10736 Arnez Rd.
Jacksonville, FL 32218

*Please note the As-Built design shows an affected area from an associated frac pit; however, Antero received a Certificate of Approval to convert it to the Hubert Centralized Waste Water Pit (033-WPC-00001) on 7/15/16.

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

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WW-6A Notice of Application Attachment (HUBERT PAD):**WATER SOURCE OWNERS – Within 1500'**

*NOTE: On attached water well map 6 other water sources are identified, but they are located greater than 1500' from the subject well pad location.

Owner: Hubert Bland, Jr. & Lorena Bland
Address: 3912 Halls Run Rd.
Salem, WV 26426

Owner: Christine R. Utter
Address: RR 1 Box 304A
Salem, WV 26426


Owner: Loren Brad Strother
Address: 4011 Halls Run Rd.
Salem, WV 26426

Owner: John D. & Marianne Clevenger (4 water wells)
Address: RR 1 Box 308A
Salem, WV 26426

Owner: Nancy E. Farr
Address: 3952 Halls Run Rd.
Salem, WV 26426

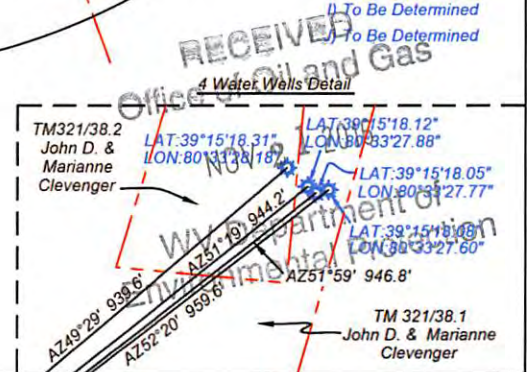
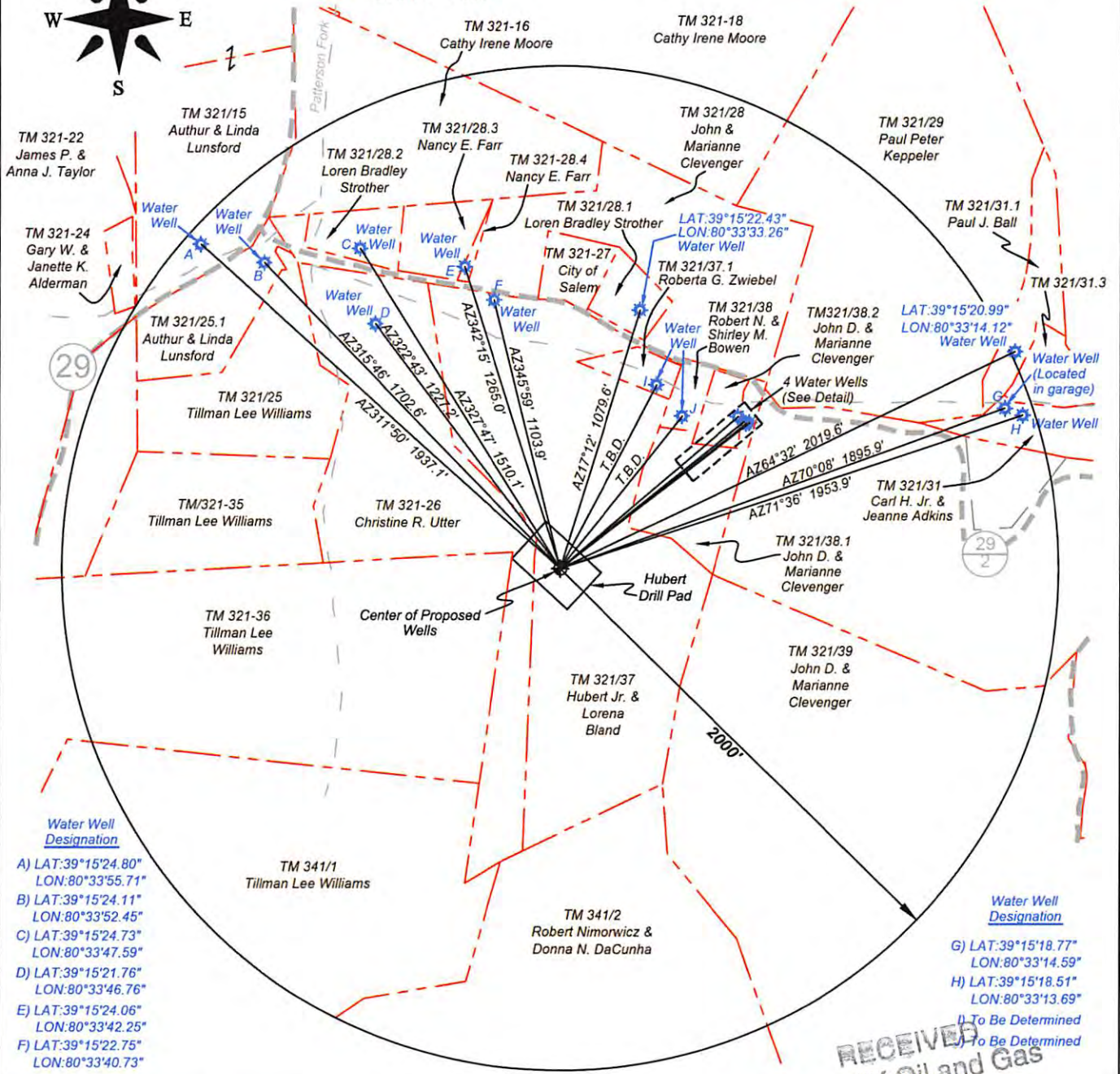
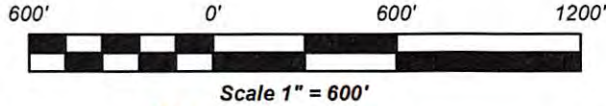
Owner: Robert G. Zwiebel
Address: 3766 Halls Run Rd.
Salem, WV 26426

Owner: Robert N. & Shirley M. Bowen
Address: 3738 Halls Run Rd.
Salem, WV 26426



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Hubert Drill Pad Water Well & Spring Map



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

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

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

Date of Notice: 11/08/2016 **Date Permit Application Filed:** 11/18/2016

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

HAND DELIVERY CERTIFIED MAIL
RETURN RECEIPT REQUESTED

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

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

Name: PLEASE SEE ATTACHMENT
Address: _____

Name: _____
Address: _____

Notice is hereby given:

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

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>537947.2590m (Approximate Pad Center)</u>
County:	<u>Harrison</u>		Northing:	<u>4345001.9130m (Approximate Pad Center)</u>
District:	<u>Tenmile</u>	Public Road Access:	<u>CR 50/6</u>	
Quadrangle:	<u>Salem</u>	Generally used farm name:	<u>Bland, Hubert, Jr. & Lorena</u>	
Watershed:	<u>Tenmile Creek</u>			

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 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: smarsh@anteroresources.com
Facsimile: 303-357-7315

Authorized Representative: Samantha Marsh
Address: 1615 Wynkoop St.
Denver, CO 80202
Telephone: 303-357-7323
Email: smarsh@anteroresources.com
Facsimile: 303-357-7315

Oil and Gas Privacy Notice:

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

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26,36 & 37
WV Department of
Environmental Protection
03/10/2017

WW-6A4 Notice of Intent to Drill Attachment:

Surface Owners:

Tax Parcel ID: 321-26

Owner: Christine R. Utter
Address: RR 1 Box 304A
Salem, WV 26426

Owner: Christine R. Utter (2nd Address)
Address: 3988 Halls Run Rd.
Salem, WV 26426

Surface Owners:

Tax Parcel ID: 321-36

Owner: Tillman Lee Williams
Address: 1545 Flinderation Rd.
Salem, WV 26426

Owner: Tillman Lee Williams
(2nd Address)
Address: RR 5 Box 706
Salem, WV 26426

Surface Owners:

Tax Parcel ID: 321-37

Owner: Hubert Jr. & Lorena Bland
Address: 3912 Halls Run Rd.
Salem, WV 26426

Owner: Hubert Jr. & Lorena Bland
(2nd Address)
Address: RR 1 Box 305
Salem, WV 26426



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WW-6A5 Notice of Planned Operations Attachment (HUBERT PAD):**List of Surface Owner(s) with Proposed Disturbance associated with Hubert Well Pad:**

WELL PAD – Owners were notified of all well work permit applications, and have executed a signed Surface Use Agreement with Antero Resources Corporation.

TM 321 PCL 26

Owner: Christine R. Utter
Address: RR 1 Box 304A
Salem, WV 26426

Owner: Christine R. Utter (2nd Address)
Address: 3988 Halls Run Rd.
Salem, WV 26426

TM 321 PCL 36

Owner: Tillman Lee Williams
Address: 1545 Flindertation Rd.
Salem, WV 26426

Owner: Tillman Lee Williams
(2nd Address)
Address: RR 5 Box 706
Salem, WV 26426

TM 321 PCL 37

Owner: Hubert Jr. & Lorena Bland
Address: 3912 Halls Run Rd.
Salem, WV 26426

Owner: Hubert Jr. & Lorena Bland
(2nd Address)
Address: RR 1 Box 305
Salem, WV 26426

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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 November 15, 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 Hubert Pad, Harrison County
Nellie Unit 2H Well site

Dear Mr. Martin,

This well site will be accessed from a DOH permit #04-2012-0815 which has been issued to Antero Resources Corporation for access to the State Road for a well site located off of Harrison County Route 50/6 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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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	111-96-6
Methenamine	100-97-0
Polyethylene polyamine	68603-67-8
Coco amine	61791-14-8
2-Propyn-1-olcompound with methyloxirane	38172-91-7

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WEST VIRGINIA COUNTY MAP

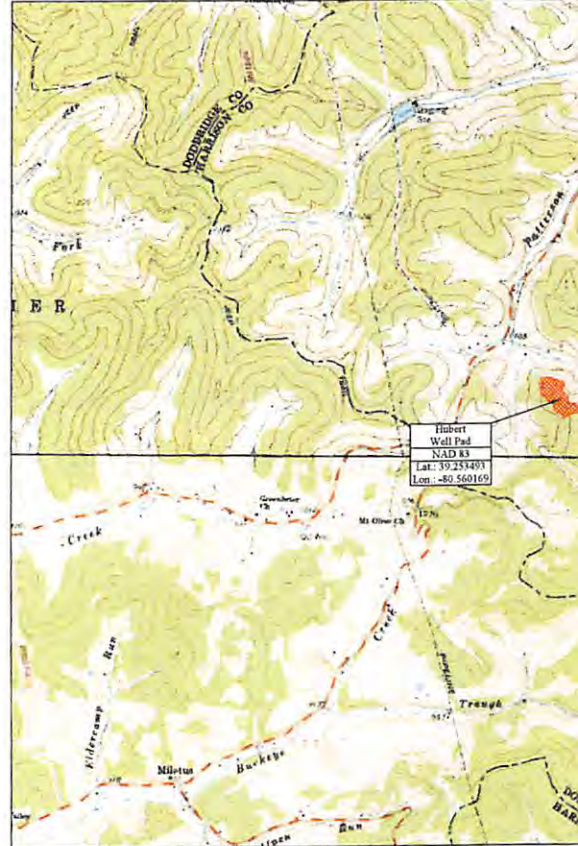


Center of Centralized Pit	
WV-NAD 83 N: 276214.36	WV-NAD 83 E: 1668289.32
WV-NAD 27 N: 276177.48	WV-NAD 27 E: 1701879.35
Lat. NAD 83: 39.253493	Lon. NAD 83: -80.560169
Lat. NAD 27: 39.253405	Lon. NAD 27: -80.560350
UTM 17 NAD 83 N: 4344999.78	UTM 17 NAD 83 E: 537949.55

Site Entrance	
WV-NAD 83 N: 275968.89	WV-NAD 83 E: 1670488.69
WV-NAD 27 N: 275931.96	WV-NAD 27 E: 1701879.35
Lat. NAD 83: 39.252889	Lon. NAD 83: -80.552569
Lat. NAD 27: 39.252801	Lon. NAD 27: -80.552750
UTM 17 NAD 83 N: 4344955.90	UTM 17 NAD 83 E: 538605.60



Well Table			
Both Unit 2H WV-NAD 83 N: 276242.31 WV-NAD 83 E: 1668260.04 WV-NAD 27 N: 276205.44 WV-NAD 27 E: 1699706.73 Lat. NAD 83: 39.253569 Lon. NAD 83: -80.560273 Lat. NAD 27: 39.253481 Lon. NAD 27: -80.560454 UTM 17 NAD 83 N: 4345008.15 UTM 17 NAD 83 E: 537940.40	Norris Unit 1H WV-NAD 83 N: 276235.54 WV-NAD 83 E: 1668267.22 WV-NAD 27 N: 276198.65 WV-NAD 27 E: 1699707.51 Lat. NAD 83: 39.253551 Lon. NAD 83: -80.560248 Lat. NAD 27: 39.253463 Lon. NAD 27: -80.560429 UTM 17 NAD 83 N: 4345006.12 UTM 17 NAD 83 E: 537942.71	Norris Unit 2H WV-NAD 83 N: 276228.13 WV-NAD 83 E: 1668274.79 WV-NAD 27 N: 276191.26 WV-NAD 27 E: 1699715.48 Lat. NAD 83: 39.253531 Lon. NAD 83: -80.560221 Lat. NAD 27: 39.253443 Lon. NAD 27: -80.560402 UTM 17 NAD 83 N: 4345003.50 UTM 17 NAD 83 E: 537945.05	Nellie Unit 1H WV-NAD 83 N: 276221.50 WV-NAD 83 E: 1668281.93 WV-NAD 27 N: 276184.63 WV-NAD 27 E: 1699722.62 Lat. NAD 83: 39.253513 Lon. NAD 83: -80.560195 Lat. NAD 27: 39.253425 Lon. NAD 27: -80.560376 UTM 17 NAD 83 N: 4345001.92 UTM 17 NAD 83 E: 537947.26
Nellie Unit 2H WV-NAD 83 N: 276214.36 WV-NAD 83 E: 1668289.32 WV-NAD 27 N: 276177.48 WV-NAD 27 E: 1699700.01 Lat. NAD 83: 39.253493 Lon. NAD 83: -80.560169 Lat. NAD 27: 39.253405 Lon. NAD 27: -80.560350 UTM 17 NAD 83 N: 4344999.78 UTM 17 NAD 83 E: 537949.55	Ford Unit 2H WV-NAD 83 N: 276207.70 WV-NAD 83 E: 1668296.18 WV-NAD 27 N: 276170.82 WV-NAD 27 E: 1699716.87 Lat. NAD 83: 39.253475 Lon. NAD 83: -80.560119 Lat. NAD 27: 39.253387 Lon. NAD 27: -80.560300 UTM 17 NAD 83 N: 4344997.78 UTM 17 NAD 83 E: 537951.67	Ford Unit 1H WV-NAD 83 N: 276200.42 WV-NAD 83 E: 1668303.31 WV-NAD 27 N: 276163.54 WV-NAD 27 E: 1699744.00 Lat. NAD 83: 39.253455 Lon. NAD 83: -80.560119 Lat. NAD 27: 39.253367 Lon. NAD 27: -80.560300 UTM 17 NAD 83 N: 4344995.60 UTM 17 NAD 83 E: 537953.88	April Unit 2H WV-NAD 83 N: 276194.46 WV-NAD 83 E: 1668311.40 WV-NAD 27 N: 276157.58 WV-NAD 27 E: 1699752.08 Lat. NAD 83: 39.253439 Lon. NAD 83: -80.560090 Lat. NAD 27: 39.253351 Lon. NAD 27: -80.560271 UTM 17 NAD 83 N: 4344993.83 UTM 17 NAD 83 E: 537956.37
April Unit 1H WV-NAD 83 N: 276187.69 WV-NAD 83 E: 1668318.76 WV-NAD 27 N: 276150.82 WV-NAD 27 E: 1699759.45 Lat. NAD 83: 39.253421 Lon. NAD 83: -80.560064 Lat. NAD 27: 39.253333 Lon. NAD 27: -80.560245 UTM 17 NAD 83 N: 4344991.80 UTM 17 NAD 83 E: 537958.65	Lee Unit 2H WV-NAD 83 N: 276180.93 WV-NAD 83 E: 1668326.13 WV-NAD 27 N: 276144.06 WV-NAD 27 E: 1699766.82 Lat. NAD 83: 39.253403 Lon. NAD 83: -80.560038 Lat. NAD 27: 39.253315 Lon. NAD 27: -80.560218 UTM 17 NAD 83 N: 4344989.78 UTM 17 NAD 83 E: 537960.93	Lee Unit 1H WV-NAD 83 N: 276174.17 WV-NAD 83 E: 1668333.50 WV-NAD 27 N: 276137.29 WV-NAD 27 E: 1699774.19 Lat. NAD 83: 39.253384 Lon. NAD 83: -80.560011 Lat. NAD 27: 39.253296 Lon. NAD 27: -80.560192 UTM 17 NAD 83 N: 4344987.76 UTM 17 NAD 83 E: 537963.21	



Project Contacts

Antero Resources	Survey and Engineer
Robert Wilks - Project Coordinator 304-842-4100 Off. 304-627-7405 Cell	Kenneth Kelly 304-338-6983 Off.
Aaron Kuntzler - Construction Manager 304-842-4191 Off. 304-641-8242 Cell	John P. See 304-442-0220 Off.
Eli Wagoner - Environmental 304-842-4668 Off. 304-476-9770 Cell	Zachary Summersfield 304-338-6987 Off.
Jon McEvers - Operations Superintendent 304-842-4739 Off. 301-808-2423 Cell	Geotechnical Engineer American Geotech, Inc. Kath Patel 304-330-4277 Off.

Topographic Information:

The topographic information shown herein is based on aerial photography by Kelly Surveying PLLC, Daley, WV.

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West Virginia State Law
Section XIV, Chapter 24-C requires
that you call before business days
before
you dig in the state of West Virginia.
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Antero Resources has already obtained an Encroachment Permit (Form MM-109) from the WV Department of Transportation, Division of Highways, prior to the commencement of any construction activities

The WV Mines Website was consulted. Previous (Current) mining activities are not within the AOI.

Approach Routes:

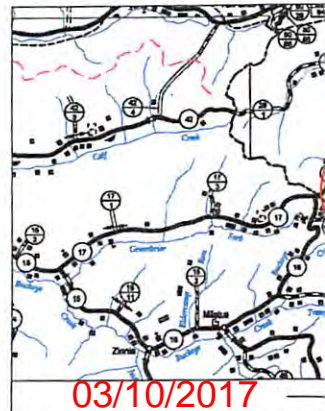
*Option 1 - From US-50 E turn right onto Co Rt 50/1 (Dog Run). Follow Co Rt 50/1 for 0.7 miles. Turn right onto Co Rt 50/73 (E Main St). Follow Co Rt 50/73 for 0.5 miles. Continue straight on Co Rt 29 (South St). Follow Co Rt 29 for 0.5 miles. Continue straight on Co Rt 29 (Patterson Fork Rd). Follow Co Rt 29 for 0.2 miles. Continue straight on Co Rt 29 (Salem Country Rd). Follow Co Rt 29 for 0.4 miles. Continue straight on Co Rt 29 (Patterson Fork Rd). Follow Co Rt 29 for 0.9 miles. Turn left on Co Rt 29/2 (Halls Run Rd). Follow Co Rt 29/2 for 1.0 miles. Turn sharp right on Co Rt 50/6 (Raccoon Run Rd). Follow Co Rt 50/6 for 0.2 miles. The site entrance is on the right (west) side of the road.

*Option 2 - From US-50 W turn left onto Co Rt 50/8 (Lake Floyd Cir). Follow Co Rt 50/8 for 1.2 miles. Continue straight on Co Rt 50/8 (Halls Run). Follow Co Rt 50/8 for 3.1 miles. Turn slight left on Co Rt 50/6 (Raccoon Run Rd). Follow Co Rt 50/6 for 0.2 miles. The site entrance is on the right (west) side of the road.

Site Locations (NAD 27)

Structure	Latitude (DD)	Longitude
Site Entrance	39.252801	-80.552
Center of Well Pad	39.253405	-80.560

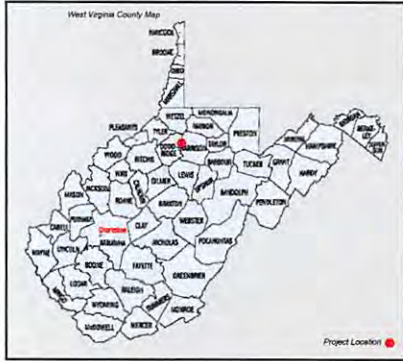
Floodplain Conditions	
Do site construction activities take place in a floodplain?	NO
Permit needed from county floodplain coordinator?	NO
FIRM Flood Hazard Zone	X
HEC-RAS Study completed:	N/A
Floodplain shown on drawings:	N/A
FIRM Map Number(s) for site:	54031CV120D
Acres of construction in floodplain:	N/A



03/10/2017

**WVDEP OOG
ACCEPTED AS-BUILT**

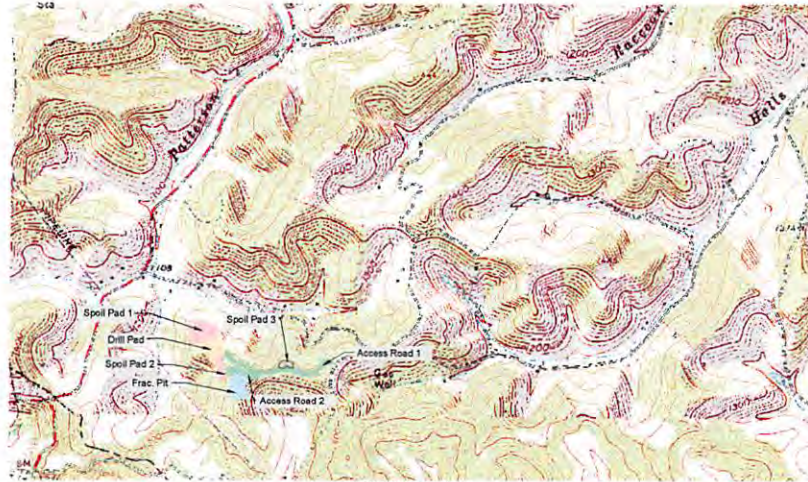
4/7/2016



HUBERT PAD AS-BUILT PLANS

ANTERO RESOURCES CORPORATION

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



AFFECTED TAX PARCELS: 321/26, 321/37, 321/36, 321/39 & 341/3
TENMILE DISTRICT

TM 321 - Pct. 26
Christine R. Utter
DB 1314/417
20 Acres
(Affected area from Proposed Drill Pad = 0.41 Acres)
(Affected area from Proposed Spoil Piles = 1.33 Acres)

TM 321 - Pct. 36
Tilman Lee Williams
DB 1322/1054
5.5 Acres
(Affected area from Proposed Drill Pad = 0.06 Acres)

TM 321 - Pct. 37
Hubert Bland Jr., et ux
DB 1307/1209
28.5 Acres
(Affected area from Proposed Access Road = 470 feet, 0.97 Acres)
(Affected area from Proposed Drill Pad = 2.75 Acres)
(Affected area from Proposed Frac Pit Access Road = 154 feet, 1.01 Acres)
(Affected area from Proposed Spoil Piles = 1.97 Acres)

TM 321 - Pct. 39
John D. Clewinger, et ux
DB 1247/039
33.35 Acres
(Affected area from Proposed Access Road = 690 feet, 1.71 Acres)
(Affected area from Proposed Spoil Piles = 0.54 Acres)

TM 341 - Pct. 3
Ariel L. Thompson
DB 1315/060
73 Acres by Deed - 71.41 Acres Assessed
(Affected 40' R/W area from Proposed Access Road = 1,259 feet, 2.92 Acres)
(Affected area from Proposed Frac Pit Access Road = 382 feet, 0.70 Acres)
(Affected area from Proposed Spoil Piles = 0.21 Acres)

Well Location Restrictions:

All Pad and Fracture Pit complies with the following restrictions.

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

Project Contacts

Antero Resources

Tom Wilcox - Construction
304-869-3405 Off. 304-863-0933 Cell

Ryan Ward, Environmental Engineer (ALLSTAR)
856-213-2666, ext 3111 Off. 304-692-7477 Cell

John Kavcak, Engineer
817-368-1533

Dusty Woods
817-771-1436

Aaron Kuntzer, Construction Manager
405-227-8344

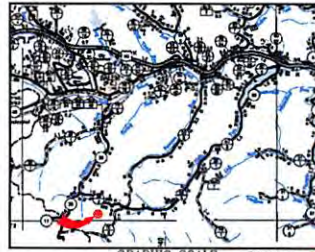
Surveyor & Engineer

Bill Yelzer, P.S. E., Allegheny Surveys Inc.
304-648-5035 Off. 304-619-4937 Cell

Tom Conners, PE, PS - Horror Brothers Engineers
304-624-6445 Office

FLOODPLAIN CONDITIONS	
DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN FLOODPLAIN	NO
PERMIT NEEDED FROM COUNTY FLOODPLAIN COORDINATOR	NO
HEC-RAS STUDY COMPLETED	N/A
FLOODPLAIN SHOWN ON DRAWINGS	N/A
FIRM MAP NUMBER(S) FOR SITE:	54005300758
ACREAGES OF CONSTRUCTION IN FLOODPLAIN:	N/A

SITE LOCATIONS	
STATE PLANE NAD 83 (WV NORTH ZONE)	
CENTER OF PAD	LONGITUDE
Center of Pad (321/37 M)	80°13'38.70" W
Center of Pad (UTM 83-T1 M)	E-517947 2560



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.

SHEET INDEX

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

DATE	REVISIONS
6-18-13	Updated Well Configuration
7-29-2013	ADDED ROAD PROFILE WITH CURVES
12-28-2015	UPDATED AS BUILT TO SHOW DRILLED WELLS, WELL HEAD, METER, CONTAINMENT AREAS & BERM DETAIL

COVER SHEET / LOCATION MAP
**HUBERT
DRILL PAD SITE**
TENMILE DISTRICT
HARRISON COUNTY, WV

Date: 6-28-2013

Scale: AS SHOWN

Drawn By: TRC & BJR

File No.: 13-012-000000

Page: 1 of 5

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



Horror Brothers Engineers
1800 Bro. Environmental and
Civil, Mining, Environmental and
1400 S. 2nd St. Ste. 100
Martinsburg, WV 26151
(304) 524-4141



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