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west virginia department of environmental protection

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

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

Monday, July 31, 2017  
WELL WORK PERMIT  
Horizontal 6A / Fracture

ANTERO RESOURCES CORPORATION  
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit approval for HILDRED UNIT 1H  
47-033-05711-00-00

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: HILDRED UNIT 1H  
Farm Name: CORDER, GERALD & LOUELLA  
U.S. WELL NUMBER: 47-033-05711-00-00  
Horizontal 6A / Fracture  
Date Issued: 7/31/2017

Promoting a healthy environment.

08/04/2017

## 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.

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### CONDITIONS

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

WW-6B  
(04/15)

API NO. 47-033 - 05711

OPERATOR WELL NO. Hildred Unit 1H

Well Pad Name: Existing Corder East Pad

Fracture

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

1) Well Operator: Antero Resources Corporation Operator ID: 494507062 County: 033-Harrison District: Union Quadrange: Big Isaac

2) Operator's Well Number: Hildred Unit 1H Well Pad Name: Existing Corder East Pad

3) Farm Name/Surface Owner: Corder, Gerald & Louella Public Road Access: CR 30/1

4) Elevation, current ground: 1405' Elevation, proposed post-construction: 1405'

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

SDW  
12/7/2016

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s): Marcellus Shale: 7490' TVD, Anticipated Thickness- 50 feet, Associated Pressure- 3200#

8) Proposed Total Vertical Depth: 7490' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 16,000' MD (\*Please note: This well has been drilled. Actual Measured Depth is 15,332')

11) Proposed Horizontal Leg Length: 7630'

12) Approximate Fresh Water Strata Depths: 100'

13) Method to Determine Fresh Water Depths: Clark Unit 1H (API# 47-033-05710) on same pad

14) Approximate Saltwater Depths: 797', 900', 1454'

15) Approximate Coal Seam Depths: 595', 666', 883'

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

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

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

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WW-6B  
(04/15)

API NO. 47- 033 - 05711

OPERATOR WELL NO. Hildred Unit 1HWell Pad Name: Existing Corder East Pad

18)

**CASING AND TUBING PROGRAM**

<b>TYPE</b>	<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#	355'	355'	CTS, 247 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	2562'	2562'	CTS, 802 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	20#	15,332'	15,332'	3040 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#		7100'	
Liners							

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12/7/2016

<b>TYPE</b>	<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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WW-6B  
(10/14)

API NO. 47- 033 - 05711

OPERATOR WELL NO. Hildred Unit 1H

Well Pad Name: Existing Corder East Pad

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

This well has been drilled to TD - 15,332'. 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): 11.02 existing acres

22) Area to be disturbed for well pad only, less access road (acres): 7.61 existing acres

23) Describe centralizer placement for each casing string:

Conductor: no centralizers

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

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

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

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

Conductor: no additives, Class A cement.

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

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

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

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

25) Proposed borehole conditioning procedures:

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

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

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

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

\*Note: Attach additional sheets as needed.



47017036340000



47017026460000



47017029420000



47033022340000



47033022330000





Hildred Unit 1H



Hildred Unit 1H - AOR



- WELL SYMBOLS
-  Gas Well
  -  Plugged Gas Well

November 12, 2016

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Office of Oil & Gas  
NOV 21 2016

08/04/2017

## HILDRED UNIT 1H (CORDER EAST PAD)- AREA OF REVIEW 35-8-5.11 PAGE 2

UWI (API Num)	Well Name	Well Number	Operator	Historical Operator	TD	ELEV. GR	TD (ESTVD)	Perforated Interval (shallowest, deepest)	Perforated Formation(s)	Productive Formation(s) not perf'd
47013022340000	NICHOLSON HOWARD	1	PETROLEUM SRVC PTRNR	DORAN ASSOC	5744	1859	-4385	5203-5354	Benson, Alexander	Frt3, Speechley, Baltzow
47017029410000	FREEMAN AGR	S-134	CONSOL GAS COMPANY	SCOTT OIL & GAS	5699	1555	-4344	5220-5373	Benson, Alexander	Frt3, Speechley, Baltzow
47013022330000	NICHOLSON HOWARD	1-EL-258	PETROLEUM SRVC PTRNR	DORAN ASSOC	5625	1241	-4384	5418	Alexander	Frt3, Speechley, Baltzow, Benson
47017028460000	ZINN BOGER	S-302	CONSOL GAS COMPANY	SCOTT ENTERPRISES	5857	1180	-4377	5408-5469	Alexander	Frt3, Speechley, Baltzow, Benson
47017036340000	TRENT W RUTH	1(E-4S)	CONSOL GAS COMPANY	EXCEL ENERGY INC	5400	890	-4410	2807-5243	Speechley, Baltzow, Benson, Alexander	Frt3

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08/04/2017



WW-9  
(4/16)

API Number 47 - 033 - 05711  
Operator's Well No. Hildred Unit 1H

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Antero Resources Corporation OP Code 494507082

Watershed (HUC 10) Turtletree Fork of Tenmile Creek Quadrangle 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

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

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

Proposed Disposal Method For Treated Pit Wastes:

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

*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/Stiff Foam, Production - Water Based Mud

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

Additives to be used in drilling medium? Please See Attachment

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

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

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

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

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

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

Company Official Signature *Cole Kilstrom*

Company Official (Typed Name) Cole Kilstrom

Company Official Title Environmental & Regulatory Manager

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

*Samantha Marsh*

Notary Public

My commission expires 12/20/2017





Form WW-9

Operator's Well No. Hildred Unit 1H

**Antero Resources Corporation**

Proposed Revegetation Treatment: Acres Disturbed 11.02 (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 Access Road A & Drill Pad (7.61) + Access Road B & Water Tank Pad (3.41) = 11.02 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: GO 6 Inspector

Date: 12/7/2016

Field Reviewed?  Yes  No

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 WV Department of  
 Environmental Protection



**911 Address**  
**1734 Turtle Tree Fork Road**  
**Salem, WV 26426**

# Well Site Safety Plan

## Antero Resources

**Well Name:** Hildred Unit 1H & 2H, Truman Unit 1H & 2H, Cleta Unit 1H & 2H, Maude Unit 1H & 2H, Opie Unit 1H & 2H, Clark Unit 1H & Oneacre Unit 1H

**Pad Location:** CORDER EAST PAD  
Harrison County/Union District

*SDW*  
*12/7/2016*

**GPS Coordinates:**

**Entrance** - Lat 39°13'24.36"/Long -80°33'23.67" (NAD83)

**Pad Center** - Lat 39°13'20.60"/Long -80°33'12.24" (NAD83)

**Driving Directions:**

From the intersection of I-50 with old route 50 head to downtown Salem for 0.2 miles. Take a slight right onto County Rd 50/73/Main 51/Old Route 50 continue to follow County Rd 50/73/Main St. 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 1.5 miles. Slight left onto Co Route 15/Sherwood-Greenbrier Rd for 1.4 miles. Turn left onto Traugh Fork Rd for 1.8 miles. Continue onto Co Route 30/Turtletree Fork Rd for 0.5 miles. Turn right to stay on Co Route 30/Turtletree Fork Rd for 161'. Slight right onto Co Route 3011/Turtletree Fork Rd for 0.6 miles. Lease road will be on the right.

**Alternate Route:** Head west on US-50 for 10.5 miles. Turn lefts onto Sycamore Rd for 0.5 miles. Turn right onto Shaws Run Rd for 1.5 miles. Slight left onto Jarvisville-Makin Rd for 1.9 miles. Continue onto Jarvisville Rd for 1.9 miles. Turn right onto Co Rte 31/Jarvisville Rd for 2.6 miles. Slight right onto Turtletree Fork Rd for 1.8 miles. Turn left to stay on Turtletree Fork Rd, the access road will be on your right.

**EMERGENCY (24 HOUR) CONTACT 1-800-878-1313**

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DEC 19 2016



WW-9  
(4/16)

API Number 47 - 033 - 05711  
Operator's Well No. Hildred Unit 1H

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Antero Resources Corporation OP Code 494507062

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Will a pit be used? Yes  No

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

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

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

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

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-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)

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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

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NOV 21 2016

Subscribed and sworn before me this 18th day of November, 2016  
Samantha Marsh Notary Public

My commission expires 12/20/2017

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

08/04/2017



## *Form WW-9 Additives Attachment*

### **SURFACE INTERVAL**

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

### **INTERMEDIATE INTERVAL**

#### *STIFF FOAM RECIPE:*

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

### **PRODUCTION INTERVAL**

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

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

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NOV 21 2016

08/04/2017

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

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

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

Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<b><u>Maude Day, et al Lease DAD038064</u></b>			
Maude Day, et al	Consolidated Gas Supply Corp.	1/8	1048/0348
Consolidated Gas Supply Corp.	Consolidated Gas Transmission Corp.	Assignment	1136/0250
Consolidated Gas Transmission Corp.	CNG Development Company	Assignment	1143/0921
CNG Development Company	CNG Producing Company	Merger	Exhibit 2
CNG Producing Company	Dominion Exploration & Production, Inc.	Amended Certificate of Authority	AOI 0058/0366
Dominion E&P, Inc.	Antero Resources Appalachian Corporation	Partial Assignment of Oil & Gas Leas	1423/1068
<b>Antero Resources Appalachian Corporation</b>	<b>Antero Resources Corporation</b>	<b>Name Change</b>	<b>Exhibit 1</b>
<b><u>Orie Mitchell, et ux Lease 038347</u></b>			
Orie Mitchell, et ux	James F. Scott, et al	1/8	1123/0760
James F. Scott, et al	ConVest 1982-B Income Program	Assignment	1128/0587
ConVest 1982-B Income Program	ConVest Production Company	Assignment	1151/0943
ConVest Production Company	BNG, Inc.	Assignment	1181/0993
BNG, Inc.	Stonewall Gas Company	Assignment	1257/0413
Stonewall Gas Company	Dominion Appalachian Development, Inc.	Merger	Exhibit 3
Dominion Appalachian Development, Inc.	Dominion Appalachian Development LLC	Certificate of Conversion	Exhibit 4
Dominion Appalachian Development LLC	Antero Resources Appalachian Corporation	Partial Assignment of Oil & Gas Leas	1423/1068
<b>Antero Resources Appalachian Corporation</b>	<b>Antero Resources Corporation</b>	<b>Name Change</b>	<b>Exhibit 1</b>
<b><u>Howard D. Nicholson, et al Lease</u></b>			
Howard D. Nicholson, et al	Doran & Associates, Inc.	1/8	1084/0203
Doran & Associates, Inc.	Cabot Oil & Gas Corporation	Assignment	1193/0361
Cabot Oil & Gas Corporation	EnerVest Appalachia, LP	General Conveyance	1314/1012
EnerVest Appalachia, LP	CGAS Properties, L.P.	Assignment	1412/0421
CGAS Properties, L.P.	Antero Resources Appalachian Corporation	Partial Assignment of Oil & Gas Lease	1484/0957
<b>Antero Resources Appalachian Corporation</b>	<b>Antero Resources Corpotation</b>	<b>Name Change</b>	<b>Exhibit 1</b>
<b><u>Howard D. Nicholson, et al Lease</u></b>			
Howard D. Nicholson, et al	Doran & Associates, Inc.	1/8	1084/0197
Doran & Associates, Inc.	Cabot Oil & Gas Corporation	Assignment	1193/0361
Cabot Oil & Gas Corporation	EnerVest Appalachia, LP	General Conveyance	1314/1012
EnerVest Appalachia, LP	CGAS Properties, L.P.	Assignment	1412/0421
CGAS Properties, L.P.	Antero Resources Appalachian Corporation	Partial Assignment of Oil & Gas Lease	1484/0957
<b>Antero Resources Appalachian Corporation</b>	<b>Antero Resources Corpotation</b>	<b>Name Change</b>	<b>Exhibit 1</b>

\*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:

Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<b><u>CNG Development Company Lease DV011417</u></b>			
CNG Development Company	Dominion Appalachian Development, LLC	1/8	0230/0470
Dominion Appalachian Development, LLC	Antero Resources Appalachian Corporation	Partial Assignment of Oil & Gas Lease	0231/0145
<b>Antero Resources Appalachian Corporation</b>	<b>Antero Resources Corporation</b>	<b>Name Change</b>	<b>Exhibit 1</b>
<b><u>Denzil O. Freeman, et ux et al Lease DAD40725/001</u></b>			
Denzil O. Freeman, et ux	James F. Scott	1/8	0116/0691
James F. Scott	Convest 1982-C Energy Income Program	Assignment	0132/0017
Convest 1982-C Energy Income Program	Convest Production Company	Assignment	0150/0582
Convest Production Company	BNG, Inc.	Assignment	0150/0596
BNG, Inc.	Stonewall Gas Company	Assignment	0173/0329
Stonewall Gas Company	Dominion Appalachian Development, Inc.	Merger	Exhibit 3
Dominion Appalachian Development, Inc.	Dominion Appalachian Development, LLC	Certificate of Conversion	Exhibit 4
Dominion Appalachian Development, LLC	Antero Resources Appalachian Corporation	Partial Assignment of Oil & Gas Lease	0230/0113
<b>Antero Resources Appalachian Corporation</b>	<b>Antero Resources Corporation</b>	<b>Name Change</b>	<b>Exhibit 1</b>
<b><u>John P. Golden, et ux Lease DAD65332/001</u></b>			
John P. Golden & Mary V. Golden	James F. Scott	1/8	0113/0337
James F. Scott	Convest 1980-II Energy Income Program	Assignment	0121/0556
Convest 1980-II Energy Income Program	Convest Production Company	Assignment	0141/0638
Convest Production Company	BNG, Inc.	Assignment	0150/0596
BNG, Inc.	Stonewall Gas Company	Assignment	0173/0329
Stonewall Gas Company	Dominion Appalachian Development, Inc.	Merger	Exhibit 3
Dominion Appalachian Development, Inc.	Dominion Appalachian Development, LLC	Certificate of Conversion	Exhibit 4
Dominion Appalachian Development, LLC	Antero Resources Appalachian Corporation	Partial Assignment of Oil & Gas Lease	0230/0113
<b>Antero Resources Appalachian Corporation</b>	<b>Antero Resources Corporation</b>	<b>Name Change</b>	<b>Exhibit 1</b>
<b><u>Roger D. Zinn, et ux, et al Lease DAD65332</u></b>			
Roger D. Zinn, et al	James F. Scott, et al	1/8	0113/0321
James F. Scott, et al	Convest Production Company	Assignment	0150/0582
Convest Production Company	BNG, Inc.	Assignment	0150/0596
BNG, Inc.	Stonewall Gas Company	Assignment	0173/0329
Stonewall Gas Company	Dominion Appalachian Development, Inc.	Merger	Exhibit 3
Dominion Appalachian Development, Inc.	Dominion Appalachian Development, LLC	Certificate of Conversion	Exhibit 4
Dominion Appalachian Development, LLC	Antero Resources Appalachian Corporation	Partial Assignment of Oil & Gas Lease	0230/0113
<b>Antero Resources Appalachian Corporation</b>	<b>Antero Resources Corporation</b>	<b>Name Change</b>	<b>Exhibit 1</b>

Received  
 Office of Oil & Gas  
 NOV 21 2016

\*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.

08/04/2017

WW-6A1  
(5/13)

Operator's Well No. Hildred Unit 1H

**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>Hazel C. Varner, et al Lease 21665</u>	Hazel Varner Clarence W. Mutschelknaus, et al Bluestone Energy Partners	Clarence W. Mutschelknaus Bluestone Energy Partners Antero Resources Bluestone, LLC a wholly owned subsidiary of Antero Resources Appalachian Corp.	1/8 Assignment Affidavit Regarding a Merger	0153/0101 0250/0244 DB 0288/0001
	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.

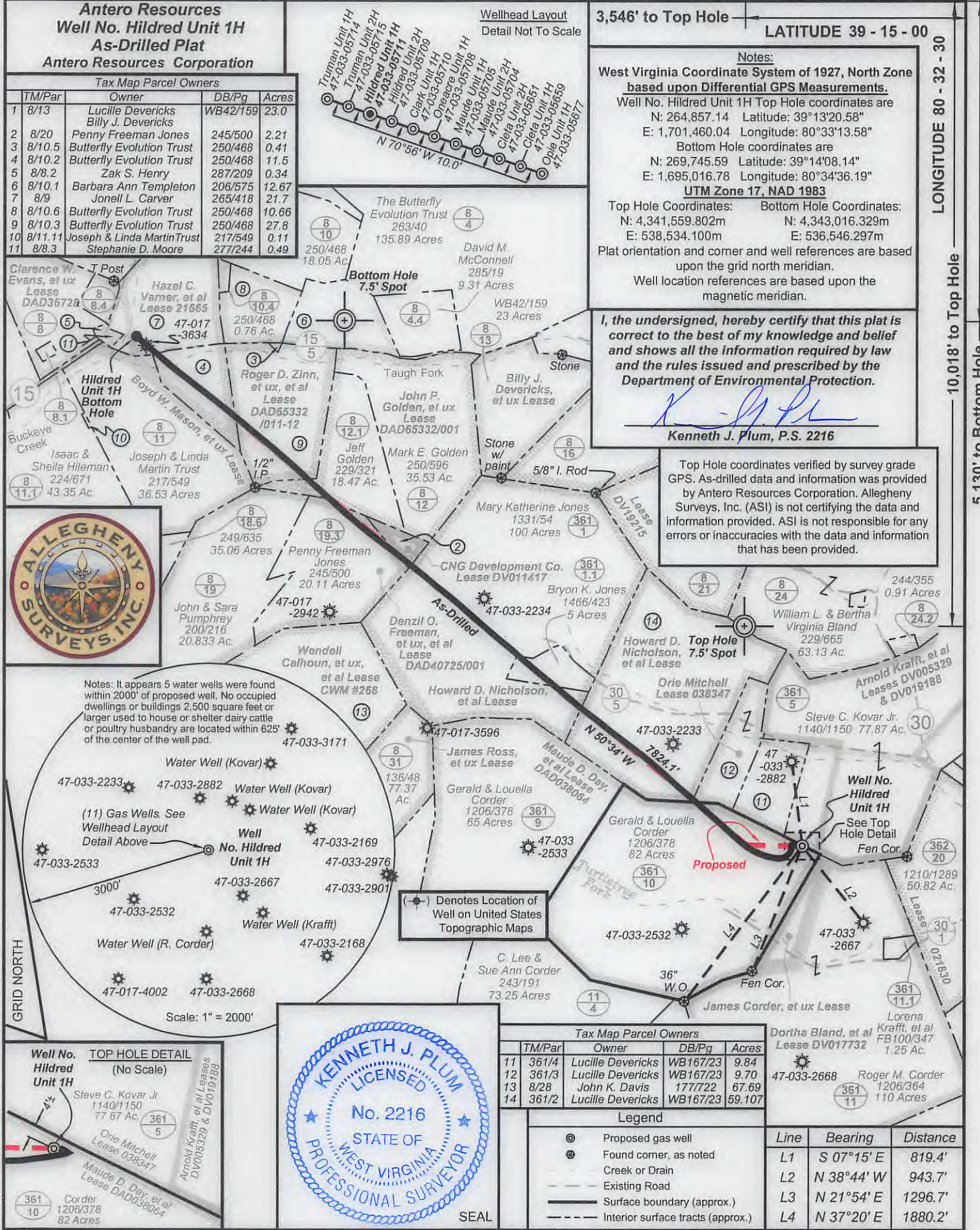
Well Operator: Antero Resources Corporation

By: Kevin Kilstrom

Its: VP of Production

**Received**  
**Office of Oil & Gas**  
**NOV 21 2016**





**Antero Resources**  
**Well No. Hildred Unit 1H**  
**As-Drilled Plat**  
**Antero Resources Corporation**

Tax Map Parcel Owners

TM/Par	Owner	DB/Pg	Acres
1 8/13	Lucille Devericks Billy J. Devericks	WB42/159	23.0
2 8/20	Penny Freeman Jones	245/500	2.21
3 8/10.5	Butterfly Evolution Trust	250/468	0.41
4 8/10.2	Butterfly Evolution Trust	250/468	11.5
5 8/8.2	Zak S. Henry	287/209	0.34
6 8/10.1	Barbara Ann Templeton	206/575	12.67
7 8/9	Jonell L. Carver	265/418	21.7
8 8/10.6	Butterfly Evolution Trust	250/468	10.66
9 8/10.3	Butterfly Evolution Trust	250/468	27.8
10 8/11.11	Joseph & Linda Martin Trust	217/549	0.11
11 8/8.3	Stephanie D. Moore	277/244	0.49

Notes:

West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.

Well No. Hildred Unit 1H Top Hole coordinates are  
 N: 264,857.14 Latitude: 39°13'20.58"  
 E: 1,701,460.04 Longitude: 80°33'13.58"  
 Bottom Hole coordinates are  
 N: 269,745.59 Latitude: 39°14'08.14"  
 E: 1,695,016.78 Longitude: 80°34'36.19"

UTM Zone 17, NAD 1983

Top Hole Coordinates: Bottom Hole Coordinates:  
 N: 4,341,559.802m N: 4,343,016.329m  
 E: 538,534.100m E: 536,546.297m

Plat orientation and corner and well references are based upon the grid north meridian.  
 Well location references are based upon the magnetic meridian.

I, the undersigned, hereby certify that this plat is correct to the best of my knowledge and belief and shows all the information required by law and the rules issued and prescribed by the Department of Environmental Protection.

*Kenneth J. Plum*  
**Kenneth J. Plum, P.S. 2216**

Top Hole coordinates verified by survey grade GPS. As-drilled data and information was provided by Antero Resources Corporation. Allegheny Surveys, Inc. (ASI) is not certifying the data and information provided. ASI is not responsible for any errors or inaccuracies with the data and information that has been provided.

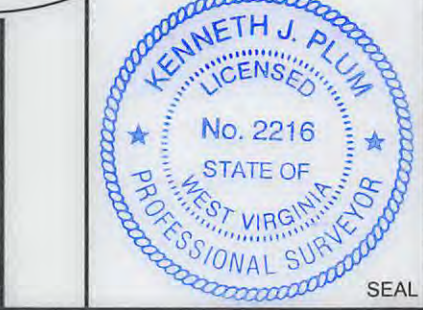
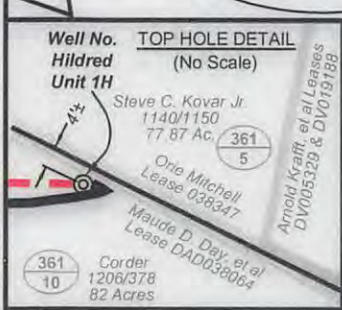
Notes: It appears 5 water wells were found within 2000' of proposed well. No occupied dwellings or buildings 2,500 square feet or larger used to house or shelter dairy cattle or poultry husbandry are located within 625' of the center of the well pad.

Water Well (Kovar) 47-033-2233  
 Water Well (Kovar) 47-033-2882  
 Water Well (Kovar) 47-033-2169  
 Water Well (Kovar) 47-033-2976  
 Water Well (Kraft) 47-033-2667  
 Water Well (Kraft) 47-033-2901  
 Water Well (R. Corder) 47-033-2168  
 Water Well (Kraft) 47-033-2668

(11) Gas Wells. See Wellhead Layout Detail Above

Well No. Hildred Unit 1H 47-033-2533  
 47-033-2532  
 47-033-2532  
 47-017-4002  
 47-033-2668

Scale: 1" = 2000'



Tax Map Parcel Owners

TM/Par	Owner	DB/Pg	Acres
11 361/4	Lucille Devericks	WB167/23	9.84
12 361/3	Lucille Devericks	WB167/23	9.70
13 8/28	John K. Davis	177/722	67.69
14 361/2	Lucille Devericks	WB167/23	59.107

Legend

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

Line	Bearing	Distance
L1	S 07°15' E	819.4'
L2	N 38°44' W	943.7'
L3	N 21°54' E	1296.7'
L4	N 37°20' E	1880.2'

FILE NO: 232-30-G-12  
 DRAWING NO: As-Drilled Hildred 1H  
 SCALE: 1" = 1200'  
 MINIMUM DEGREE OF ACCURACY: Submeter  
 PROVEN SOURCE OF ELEVATION: WVDOT, Bridgeport, WV

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

DATE: March 2 2017  
 OPERATOR'S WELL NO. Hildred Unit 1H  
 API WELL NO: 47 - 033 - 05711F  
 STATE COUNTY PERMIT

WELL TYPE:  OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  
 (IF GAS) PRODUCTION:  STORAGE  DEEP  SHALLOW  
 Existing Grade - 1405'  
 LOCATION: ELEVATION: Original Grade - 1416' WATERSHED: Tenmile Creek QUADRANGLE: Big Isaac  
 DISTRICT: Union Denzil O. Freeman, et ux, et al; Hazel C. Varner, et al; John P. Golden, et ux; DAD40725/001; 21665 20-361-2; DV011417  
 SURFACE OWNER: Gerald & Louella Corder Roger D. Zinn, et ux, et al; CNG Development Co.; DAD65332/011-12 ACREAGE: 82 31.5; 76  
 ROYALTY OWNER: Maude D. Day, et al; Ori Mitchell; Howard D. Nicholson, et al (2) LEASE NO: 20-361-1.1; DAD65332/001 ACREAGE: 54; 27.95; 2.33  
 PROPOSED WORK:  DRILL  CONVERT  DRILL DEEPER  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  
 PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY) TVD 7,490'  
 PLUG AND ABANDON  CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale DEPTH: MD 15,328'

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



FORM WW-6A1  
EXHIBIT 1

FILED

JUN 10 2013

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



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

APPLICATION FOR  
AMENDED CERTIFICATE  
OF AUTHORITY

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

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

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

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

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

Form CF-4

Issued by the Office of the Secretary of State

Received  
Office of Oil & Gas  
Revised 4/13  
NOV 21 2016

**FORM WW-6A1  
EXHIBIT 2**

33-05711

KEN HECHLER  
FEE \$5.00



TO BE FILED IN DUPLICATE  
ORIGINALS

FILED  
JUL 10 1991  
OFFICE OF  
SECRETARY OF STATE  
WEST VIRGINIA

**APPLICATION FOR  
CERTIFICATE OF WITHDRAWAL  
OF  
CHG Development Company**

In accordance with Chapter 31, Article 1, Section 60 of the Code of West Virginia, the undersigned corporation hereby applies for a certificate of withdrawal from West Virginia, and submits the following statement:

The name of the corporation is: CHG Development Company

It is incorporated under the laws of Delaware

IT IS NOT TRANSACTING BUSINESS IN WEST VIRGINIA.

It hereby surrenders its authority to transact business in West Virginia. It revokes the authority of its registered agent in West Virginia to accept service of process, and consents that service of process in any action, suit or proceeding based upon any course of action arising in West Virginia during the time the corporation was authorized to transact business in West Virginia may thereafter be made on the corporation by service thereof on the Secretary of State of West Virginia.

The post-office address to which the Secretary of State may mail a copy of any process against the corporation is: CHG Producing Company, CHG Tower, 1450 Poydras Street, New Orleans, LA 70112-6000 Attn: Corporate Secretary

The aggregate number of shares which it has authority to issue, itemized by classes, par value of shares, shares without par, and series, if any, within a class, as of this date is:

NUMBER OF SHARES	CLASS	SERIES	PAR VALUE/NO PAR
1,400,000	Common		\$100

The aggregate number of its issued shares, itemized by classes, par value of shares, shares without par, and series, if any, within a class, as of this date is:

NUMBER OF SHARES	CLASS	SERIES	PAR VALUE/NO PAR
1,168,410	Common		\$100

The amount of its state capital as of this date is \$28,814,000

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NOV 21 2016

08/04/2017



33-05711

**FORM WW-6A1  
EXHIBIT 3, PAGE 1**

COMMONWEALTH OF VIRGINIA  
STATE CORPORATION COMMISSION  
Clerk of the Commission  
P. O. Box 1197, 1300 East Main Street  
Richmond, VA 23209

ARTICLES OF MERGER  
**DOMINION APPALACHIAN DEVELOPMENT, INC.** *Dan*  
a Virginia corporation  
**STONEWALL GAS COMPANY**  
a Virginia corporation

The undersigned corporations, pursuant to Title 13.1, Chapter 9, Article 12 of the Code of Virginia, hereby execute the following Articles of Merger and set forth:

**ARTICLE I**

The Plan of Merger (the "Plan") made and entered into as of the 31st day of August, 1998 by and between the undersigned corporations and attached hereto as Exhibit A provides for the **merger of Stonewall Gas Company into Dominion Appalachian Development, Inc.** The Plan constitutes the "Plan of Merger" for the purposes of Article 12 of the Virginia State Corporation Act.

**ARTICLE II**

The Plan was adopted by the written consent of the sole shareholder of Stonewall Gas Company.

**ARTICLE III**

The Plan was adopted by the written consent of the sole shareholder of Dominion Appalachian Development, Inc.

**ARTICLE IV**

These Articles of Merger shall become effective on September 30, 1998.

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NOV 21 2016

08/04/2017



IN WITNESS WHEREOF, Dominion Appalachian Development, Inc. and Stonewall Gas Company have caused these Articles of Merger to be executed as of the 31 day of August, 1998..

DOMINION APPALACHIAN  
DEVELOPMENT, INC.,  
a Virginia corporation

By: Thomas N. Chewing  
Name: Thomas N. Chewing  
Its: Vice President

STONEWALL GAS COMPANY,  
a Virginia corporation

By: G. E. Luke, Jr.  
Name: G. E. Luke, Jr.  
Its: Sr. Vice President

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NOV 21 2016

AC

# State of West Virginia



## Certificate

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

**DOMINION APPALACHIAN DEVELOPMENT, INC.**  
(a Virginia corporation)

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

Therefore, I issue this

### CERTIFICATE OF CONVERSION

converting the corporation to

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



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

February 23, 2006

Received

Office of Oil & Gas

*Betty Ireland*

Secretary of State

08/04/2017

33-05711



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

November 17, 2016

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

RE: Hildred Unit 1H (API # 47-033-05711)  
Quadrangle: Big Isaac  
Harrison County/ Union District, West Virginia

Mr. Martin:

Antero Resources Corporation (Antero) is submitting the following application for a new well work permit for the Hildred Unit 1H 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 Hildred Unit 1H horizontal lateral will drill through including any and all roads crossed under as identified on the attached survey plat.

Sincerely,

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

Tim Rady  
Director, Land Operations- Marcellus

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Office of Oil & Gas  
NOV 21 2016

08/04/2017

**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 - 05711

Operator's Well No. Hildred Unit 1H

Well Pad Name: Existing Corder East 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>538534.100m</u>
County: <u>Harrison</u>	UTM NAD 83 Northing: <u>4341559.802m</u>
District: <u>Union</u>	Public Road Access: <u>CR 30/1</u>
Quadrangle: <u>Big Isaac</u>	Generally used farm name: <u>Corder, Gerald &amp; Louella</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.

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:  *PLEASE CHECK ALL THAT APPLY		<b>OOG OFFICE USE ONLY</b>
<input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED		<input type="checkbox"/> RECEIVED/ NOT REQUIRED
<input type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input checked="" type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED		<input type="checkbox"/> RECEIVED
<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  <input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)		<input type="checkbox"/> RECEIVED/ NOT REQUIRED
<input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION		<input type="checkbox"/> RECEIVED
<input checked="" type="checkbox"/> 5. PUBLIC NOTICE		<input type="checkbox"/> RECEIVED
<input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION		<input type="checkbox"/> RECEIVED

**Required Attachments:**

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

**Received**  
**Office of Oil & Gas**

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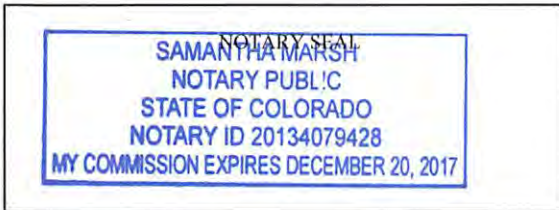
08/04/2017



**Certification of Notice is hereby given:**

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

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



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

**Oil and Gas Privacy Notice:**

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

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

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

**Date of Notice:** 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: \_\_\_\_\_  
Address: \_\_\_\_\_

COAL OWNER OR LESSEE  
Name: PLEASE SEE ATTACHMENT  
Address: \_\_\_\_\_

COAL OPERATOR  
Name: NO DECLARATIONS ON RECORD WITH COUNTY  
Address: \_\_\_\_\_

WATER PURVEYOR(s)/OWNER(s) OF WATER WELL,  
SPRING OR OTHER WATER SUPPLY SOURCE  
Name: PLEASE SEE ATTACHMENT  
Address: \_\_\_\_\_

OPERATOR OF ANY NATURAL GAS STORAGE FIELD  
Name: \_\_\_\_\_  
Address: \_\_\_\_\_

\*Please attach additional forms if necessary

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**NOV 21 2016**

**08/04/2017**



**Notice is hereby given:**

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

**This Notice Shall Include:**

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

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

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

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

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

**Well Location Restrictions**

Pursuant to W. Va. Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No well pad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, a permit obtained 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

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

**Water Well Testing:**

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

**Water Testing Laboratories:**

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

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

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

**Written Comment:**

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

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

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

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

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

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

**Comment Requirements**

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

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

**Permit Denial or Condition**

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

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

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

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

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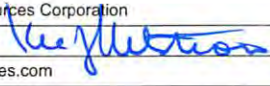


WW-6A  
(8-13)

API NO. 47- 033 - 05711 **47-033-05711**  
OPERATOR WELL NO. Hildred Unit 1H  
Well Pad Name: Existing Corder East Pad

**Notice is hereby given by:**

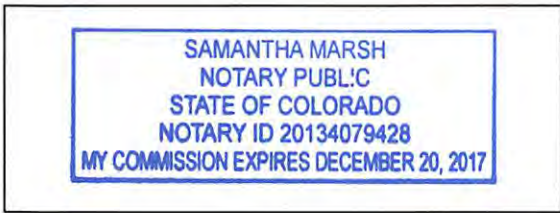
Well Operator: Antero Resources Corporation  
Telephone: (303) 357-7310  
Email: asteele@anteroresources.com



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

**Oil and Gas Privacy Notice:**

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



Subscribed and sworn before me this 18<sup>th</sup> day of November 2016  
Samantha Marsh Notary Public  
My Commission Expires 12/20/2017

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**WW-6A Notice of Application Attachment (CORDER EAST PAD):****List of Surface Owner(s) with Proposed Disturbance associated with Corder East 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 361 PCL 4**

**Owner:** Dina Hanna, et al  
\*Administratrix of Lucille Deverics Estate  
**Address:** PO Box 874  
Jane Lew, WV 26378

**TM 361 PCL 5**

**Owner:** Steve C. Kovar, Jr.  
**Address:** 2203 Turtletree Fork Road  
Bristol, WV 26426

**2<sup>nd</sup> Address:** RR 2 Box 190  
Bristol, WV 26426

**TM 361 PCL 10**

**Owner:** Gerald W. & Louella M. Corder  
**Address:** 58 Blackberry Hollow Rd  
Bristol, WV 26426

**2<sup>nd</sup> Address:** RR 2 Box 174  
Bristol, WV 26426

**3<sup>rd</sup> Address:** 600 Turtletree Fork Road  
Bristol, WV 26426

**TM 361 PCL 11**

**Owner:** Roger M. Corder  
**Address:** 553 Blackberry Hollow Rd  
Bristol, WV 26426

**2<sup>nd</sup> Address:** RR 2 Box 187  
Bristol, WV 26426

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**WW-6A Notice of Application Attachment (CORDER EAST PAD):  
List of Surface Owner(s) with Proposed Disturbance associated with Corder East  
Well Pad:**

**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 361 PCL 2, 3**

**Owner:** Dina Hanna, et al (ON LEASE)  
\*Administratrix of Lucille Deverics Estate  
**Address:** PO Box 874  
Jane Lew, WV 26378

**TM 361 PCL 10**

**Owner:** Gerald W. & Louella M. Corder  
**Address:** 58 Blackberry Hollow Rd  
Bristol, WV 26426

**2<sup>nd</sup> Address:** RR 2 Box 174  
Bristol, WV 26426

**3<sup>rd</sup> Address:** 600 Turtletree Fork Road  
Bristol, WV 26426

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### WW-6A Notice of Application Attachment (CORDER EAST PAD):

#### Corder East Well Pad:

##### COAL OWNER OR LESSEE

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

**Owner:** Anker Energy Corporation, Wolf Run Mining Company  
 c/o Corporation Service Center  
**Address:** 99 Edmiston Way  
 Buckhannon, WV 26201

**Owner:** International Coal Group, Inc.  
 c/o Corporation Service Center  
**Address:** 300 Corporate Center Dr.  
 Scott Depot, WV 25560

**Owner:** Patriot Mining Company  
 c/o Corporation Service Center  
**Address:** 2708 Cranberry Sq.  
 Morgantown, WV 26508

**Owner:** Anker Energy Corporation, Hunter Ridge Coal Company  
 c/o Corporation Service Center  
**Address:** 2708 Cranberry Sq.  
 Morgantown, WV 26508

##### WATER SOURCE OWNERS – Within 1500'

\*NOTE: On attached water well map 1 other water source is identified, but it is located greater than 1500' from the subject well pad location.

**Owner:** Roger M. Corder  
**Address:** 553 Blackberry Hollow Rd  
 Bristol, WV 26426

**2<sup>nd</sup> Address:** RR 2 Box 187  
 Bristol, WV 26426

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

**Owner:** Lorena Krafft, et al  
**Address:** 895 Sherwood Dr.  
Elyria, OH 44035

**Owner:** Steve C. Kovar, Jr. (2 Water Sources)  
**Address:** 2203 Turtletree Fork Rd.  
Bristol, WV 26426

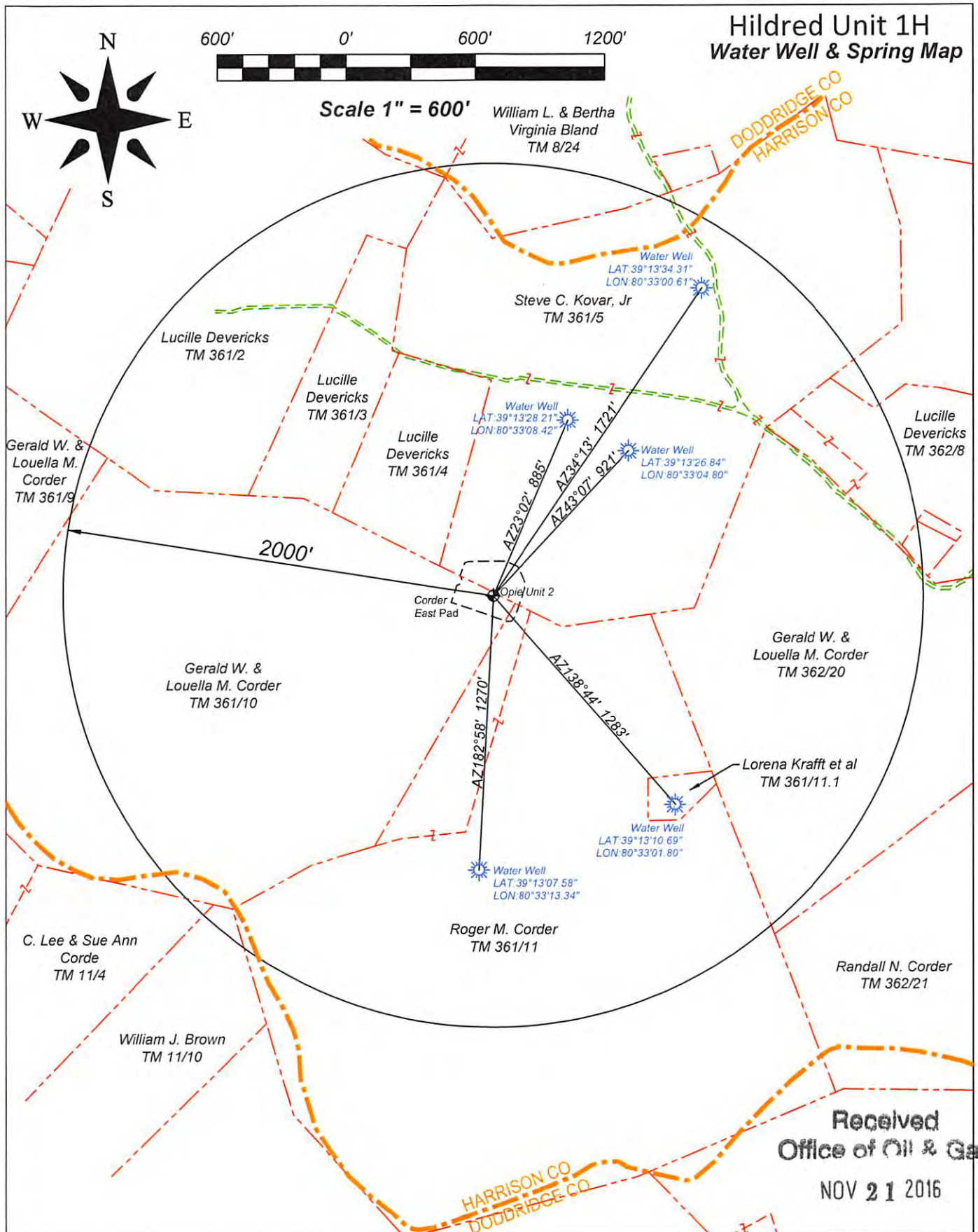
**2<sup>nd</sup> Address:** RR 2 Box 190  
Bristol, WV 26426

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**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>538550.5m (Approximate Pad Center)</u>
County: <u>Harrison</u>	Northing: <u>4341550.8m (Approximate Pad Center)</u>
District: <u>Union</u>	Public Road Access: <u>CR 30/1</u>
Quadrangle: <u>Big Isaac</u>	Generally used farm name: <u>Corder, Gerald &amp; Louella</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 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Notice is hereby given by:**

Well Operator: Antero Resources 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](mailto:depprivacyofficer@wv.gov).

Received  
Office of Oil & Gas  
NOV 21 2016  
TM 361/PCL 4,5,10 & 11

08/04/2017



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

**Surface Owners:**

Tax Parcel ID: 361-4

**Owner:** Dinah Hannah, et al  
\*Administratrix of Lucille  
Devericks Estate  
**Address:** PO Box 874  
Jane Lew, WV 26378

**Surface Owners:**

Tax Parcel ID: 361-5

**Owner:** Steve C. Kovar, Jr.  
**Address:** 2203 Turtle Tree Fork Rd.  
Salem, WV 26426

**Owner:** Steve C. Kovar, Jr.  
(2<sup>nd</sup> Address)  
**Address:** RR 2 Box 190  
Bristol, WV 26426

**Surface Owners:**

Tax Parcel ID: 361-10

**Owner:** Gerald W. & Louella M. Corder  
**Address:** 58 Blackberry Hollow Rd.  
Bristol, WV 26426

**Owner:** Gerald W. & Louella M. Corder  
(2<sup>nd</sup> Address)  
**Address:** RR 2 Box 174  
Bristol, WV 26426

**Owner:** Gerald W. & Louella M. Corder  
(3<sup>rd</sup> Address)  
**Address:** 600 Turtletree Fork Rd.  
Bristol, WV 26426

**Surface Owners:**

Tax Parcel ID: 361-11

**Owner:** Roger M. Corder  
**Address:** 553 Blackberry Hollow Rd.  
Bristol, WV 26426

**Owner:** Roger M. Corder  
(2<sup>nd</sup> Address)  
**Address:** RR 2 Box 187  
Bristol, WV 26426



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**Office of Oil & Gas**  
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08/04/2017

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

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

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

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

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

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

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

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

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

**Notice is hereby given:**

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

State: <u>West Virginia</u>	UTM NAD 83 Easting: <u>538534.100m</u>
County: <u>Harrison</u>	Northing: <u>4341559.802m</u>
District: <u>Union</u>	Public Road Access: <u>CR 30/1</u>
Quadrangle: <u>Big Isaac</u>	Generally used farm name: <u>Corder, Gerald &amp; Louella</u>
Watershed: <u>Tenmile Creek</u>	

**This Notice Shall Include:**

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

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

**Oil and Gas Privacy Notice:**

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

Received  
Office of Oil & Gas  
NOV 21 2016



**WW-6A5 Notice of Planned Operations Attachment:****Surface Owners:**Tax Parcel ID: 361-4

**Owner:** Dinah Hannah, et al  
\*Administratrix of Lucille  
Devericks Estate  
**Address:** PO Box 874  
Jane Lew, WV 26378

**Surface Owners:**Tax Parcel ID: 361-5

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**Address:** 600 Turtletree Fork Rd.  
Bristol, WV 26426

**Surface Owners:**Tax Parcel ID: 361-11

**Owner:** Roger M. Corder  
**Address:** 553 Blackberry Hollow Rd.  
Bristol, WV 26426

**Owner:** Roger M. Corder  
(2<sup>nd</sup> Address)  
**Address:** RR 2 Box 187  
Bristol, WV 26426

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Office of Oil & Gas  
NOV 21 2016

08/04/2017



## WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

## Division of Highways

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

Earl Ray Tomblin  
 Governor

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

November 15, 2016

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

Subject: DOH Permit for the Corder East Pad, Doddridge County  
 Hildred Unit 1H Well site

Dear Mr. Martin,

This well site will be accessed from a DOH permit #04-2012-1080 which has been issued to Antero Resources Corporation for access to the State Road for a well site located off of Doddridge County Route 48 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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 Office of Oil & Gas  
 NOV 21 2016



# List of Anticipated Additives Used for Fracturing or Stimulating Well

Additives	Chemical Abstract Service Number (CAS #)
Fresh Water	7732-18-5
2 Phosphobutane 1,2,4 tricarboxylic acid	37971-36-1
Ammonium Persulfate	7727-54-0
Anionic copolymer	Proprietary
Anionic polymer	Proprietary
BTEX Free Hydrotreated Heavy Naphtha	64742-48-9
Cellulase enzyme	Proprietary
Demulsifier Base	Proprietary
Ethoxylated alcohol blend	Mixture
Ethoxylated Nonylphenol	68412-54-4
Ethoxylated oleylamine	26635-93-8
Ethylene Glycol	107-21-1
Glycol Ethers	111-76-2
Guar gum	9000-30-0
Hydrogen Chloride	7647-01-0
Hydrotreated light distillates, non-aromatic, BTEX free	64742-47-8
Isopropyl alcohol	67-63-0
liquid, 2,2-dibromo-3-nitrilopropionamide	10222-01-2
Microparticle	Proprietary
Petroleum Distillates (BTEX Below Detect)	64742-47-8
Polyacrylamide	57-55-6
Propargyl Alcohol	107-19-7
Propylene Glycol	57-55-6
Quartz	14808-60-7
Sillica, crystalline quartz	7631-86-9
Sodium Chloride	7647-14-5
Sodium Hydroxide	1310-73-2
Sugar	57-50-1
Surfactant	68439-51-0
Suspending agent (solid)	14808-60-7
Tar bases, quinoline derivs, benzyl chloride-quaternized	72480-70-7
Solvent Naphtha, petroleum, heavy aliph	64742-96-7
Soybean Oil, Me ester	67784-80-9
Copolymer of Maleic and Acrylic Acid	52255-49-9
DETA phosphonate	15827-60-8
Hexamethylene Triamine Penta	34690-00-1
Phosphino Carboxylic acid polymer	71050-62-9
Hexamethylene Diamine Tetra	23605-75-5
2-Propenoic acid, polymer with 2 propenamide	9003-06-9
Hexamethylene diamine penta (methylene phosphonic acid)	23605-74-5
Diethylene Glycol	111-46-6
Methenamine	100-97-0
Polyethylene polyamine	68603-67-8
Coco amine	61791-14-8
2-Propyn-1-olcompound with methyloxirane	38172-91-7

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Office of Oil & Gas  
NOV 21 2016

08/04/2017

# CORDER EAST PAD AS-BUILT AND RECLAMATION PLAN ANTERO RESOURCES CORPORATION



WELL TANK					
Well ID	Owner	Depth (ft)	Capacity (gals)	Date Installed	Notes
W-01	Antero	120	1000	10/15/17	Water Tank Pad
W-02	Antero	120	1000	10/15/17	Water Tank Pad
W-03	Antero	120	1000	10/15/17	Water Tank Pad
W-04	Antero	120	1000	10/15/17	Water Tank Pad
W-05	Antero	120	1000	10/15/17	Water Tank Pad



West Virginia State Plane Coordinate System  
North Zone, NAD27  
Elevations Based on NAVD83  
Established By Survey Grade GPS & OPUS Post-Processing

Owner	Well Owner	Street Name	Total Area	Type of Disturbance	Average
Antero	W-01	W-01	7.61	Access Road &	0.42
Antero	W-02	W-02	9.7	Access Road &	0.4
Antero	W-03	W-03	5.51	Access Road & Well Pad	1.12
Antero	W-04	W-04	11.85	Well Pad	1.12
Antero	W-05	W-05	12.67	Access Road & Well Pad	1.18
Antero	W-06	W-06	42	Access Road & Well Pad	1.12
Antero	W-07	W-07	120	Well Pad	1.12
Antero	W-08	W-08	11.85	Well Pad	1.12
Antero	W-09	W-09	11.85	Well Pad	1.12

Category	Area (ac)
Access Road A & Well Pad	7.61
Access Road B & Well Pad	3.41
Total Affected Area	11.02
Total Wooded Area Disturbed	8.00
Total Linear Feet of Access Road	501

\*NOTE: No Streams or Wetlands Were Impacted by this Design

**Project Contacts**

**Antero Resources**

Conrad Basler, Design and Construction Manager  
304-842-4100 Off. 304-478-8200 Cell

El Wagener, Environmental Engineer  
304-822-3842, ext 311 Off. 304-476-9770 Cell

John McEvers, Operations Superintendent  
304-842-4733 Off. 303-808-2423 Cell

Aaron Kusler, Construction Supervisor  
425-227-8344

Robert Work, Manager WV Design & Survey  
304-842-4100 Off. 304-627-7403 Cell

Bob Eskey, Utility Coordinator  
304-719-1589 Off.

**Surveyor & Engineer**

Bill Yetzer, PE, EI - Allegheny Surveys Inc.  
304-840-5035 Off. 304-478-4937 Cell

Kirk Wilson, PE - L&W Enterprises, Inc.  
304-237-8818 Off. 304-658-0383 Cell



BIG ISAAC QUAD  
0 1000 2000 3000

SITE LOCATIONS	
NAD 83	
LATITUDE	LONGITUDE
Center of Pad (Well #8)	39.2223922 -80.5334011
Center of Pad	39.2223922 -80.5334011
Begin Access Road	39.2234141 -80.5365740

UNION DISTRICT  
HARRISON COUNTY, WV  
TENMILE CREEK WATERSHED



**As-Built Certification**

This as-built certifies that this Well Pad and access road was constructed in reasonable conformance with the design drawings that were prepared in accordance with the West Virginia Code of State Rules, Division of Environmental Protection, Office of Oil and Gas § CSR 35-8.

FLOODPLAIN CONDITIONS	
DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN FLOODPLAIN	NO
PERMIT NEEDED FROM COUNTY FLOODPLAIN COORDINATOR	NO
HIC-RAS STUDY COMPLETED	N/A
FLOODPLAIN SHOWN ON DRAWINGS	N/A
FIRM MAP NUMBER(S) FOR SITE	5400530075B
ACREAGES OF CONSTRUCTION IN FLOODPLAIN:	N/A

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



Allegheny Surveys, Inc.  
172 Thompson Drive  
Brigport, WV 26330  
(304) 846-5035



L&W ENTERPRISES, INC.  
4401 E. 5th Avenue  
P.O. Box 1070  
Martinsburg, WV 26155  
Tel: (304) 773-8833  
Fax: (304) 773-8834  
www.lw-survey.com



ANTERO  
RESOURCES

THIS DOCUMENT  
PREPARED FOR:  
ANTERO RESOURCES  
CORPORATION

COVER SHEET/LOCATION MAP  
CORDER EAST PAD  
AS-BUILT AND RECLAMATION PLAN  
UNION DISTRICT  
HARRISON COUNTY, WV

Date: 5/24/16

Scale: N/A

DATE	REVISIONS
2-3-17	Revised to add Cellar Detail and new Tank Pad Reclamation Plan All Sheets.

Designed By: CKW

File No: Antero 250-11

Page 1 of 4



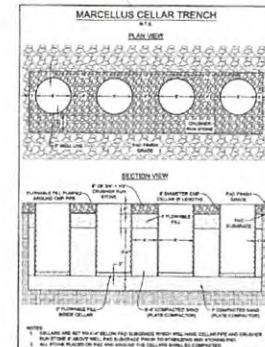
**APPROVED**  
**WVDEP OOG**  
 Reclamation Plans  
 7/26/2017

# OVERALL AS-BUILT PLAN VIEW



Site is fully stabilized.

Legend	
— 2' Contour	— As-built Curved W/ Inlet & Outlet Protection
— 10' Contour	— As-built Silt Fence
— Existing Tree Line	— Stoned Area
— E — Existing Utility Line / Pole	
— Surface Owner Property Line	
— Existing Gas Line CL	
— Stream Pier Footings	
— LOD	
— Limits of Disturbance	
— As-built Tree Line	



DATE	REVISIONS	Date: 5/24/16
2-3-17	Revised to add Cellar Detail and new Tank Pad Reclamation Plan All Sheets	Scale: 1" = 160'
		Designed By: CKW
		File No: Antero 150-11
		Page 2 of 4



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



L&W ENTERPRISES, INC.  
 1000 W. Main Street  
 Pittsburgh, PA 15222  
 (412) 526-1111



THIS DOCUMENT  
 PREPARED FOR  
 ANTERO RESOURCES  
 CORPORATION

OVERALL AS-BUILT PLAN VIEW  
 CORDER EAST PAD  
 AS-BUILT AND RECLAMATION PLAN  
 UNION DISTRICT  
 HARRISON COUNTY, WV



# WELL PAD AS-BUILT AND RECLAMATION PLAN



**APPROVED**  
**WVDEP OOG**  
 Reclamation Plans  
 7/26/2017



Allegheny Surveys, Inc.  
 112 Thompson Drive  
 Bridgeport, WV 26330  
 (304) 848-6035



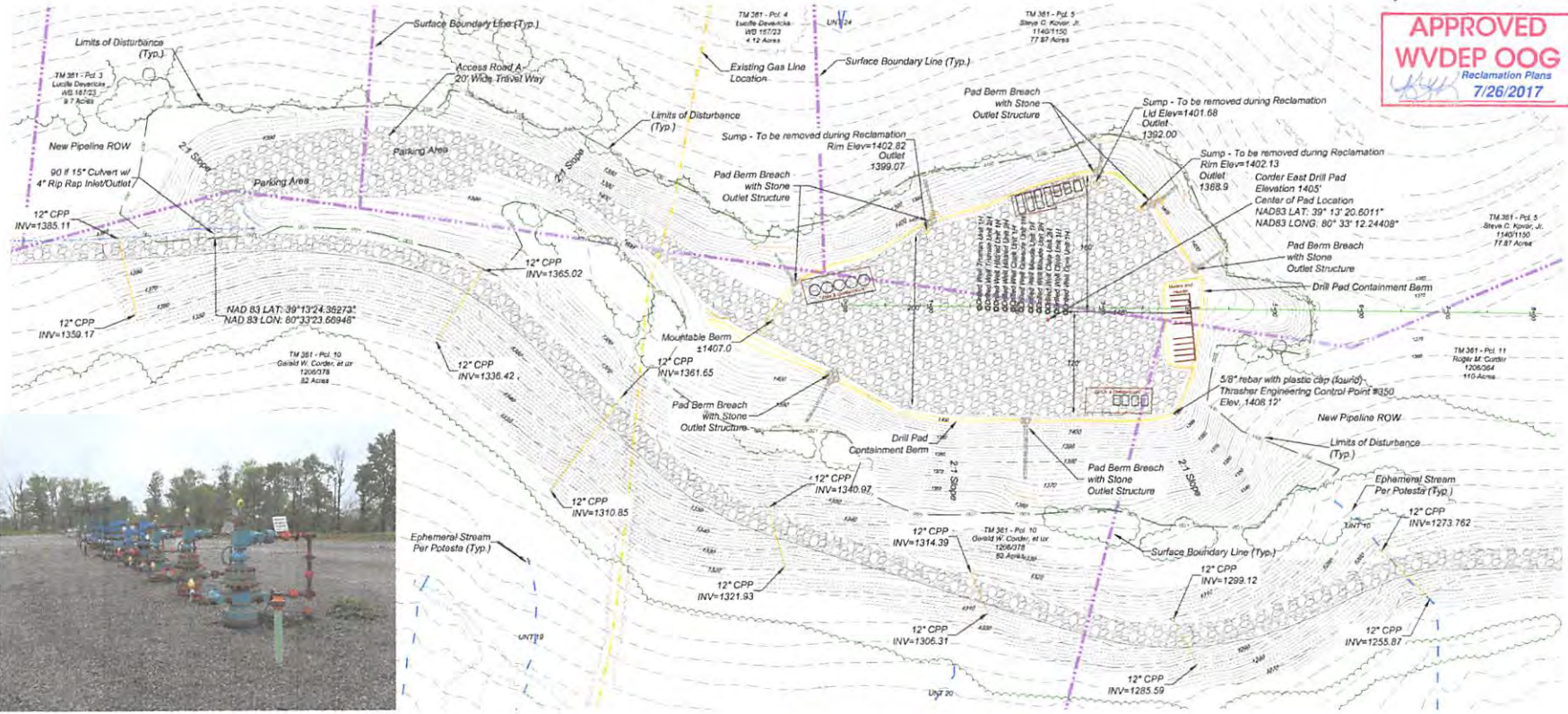
L&W ENTERPRISES, INC.  
 10000 W. STATE STREET  
 PETERSBURG, VA 23126



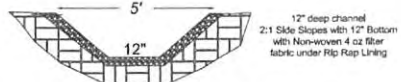
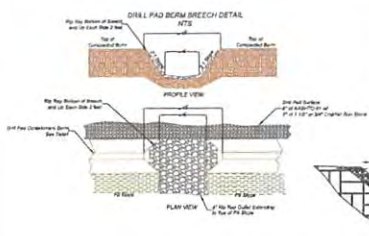
**ANTERO RESOURCES**

THIS DOCUMENT PREPARED FOR ANTERO RESOURCES CORPORATION

WELL PAD AS-BUILT AND RECLAMATION PLAN  
 CORDER EAST PAD  
 AS-BUILT AND RECLAMATION PLAN  
 UNION DISTRICT  
 HARRISON COUNTY, WV



- WELL PAD RECLAMATION NOTES:**
- Site is fully stabilized.
  - No Additional Grading is required for Reclamation.
  - Remove all existing Silt Fence along LOD.
  - Install 12" Silt Soxx below each berm breach outlet channel.
  - Remove sumps, breach berms, cut outlet channels and line with Rip Rap and fabric. Seed and mulch any disturbed areas.
  - Track in spoils on inside of berm and seed and mulch.
  - Approximately 70 tons of Rip Rap will be required.



Typical Outlet Channel



Legend	
	As-built 2' Contour
	As-built 10' Contour
	Existing Tree Line
	Existing Utility Line / Pole
	Surface Owner Property Line
	Existing Gas Line CL
	Stream Per Potesta
	Limits of Disturbance
	As-built Tree Line
	As-built Culvert W/ Inlet & Outlet Protection
	12" Silt Soxx
	Stored Area

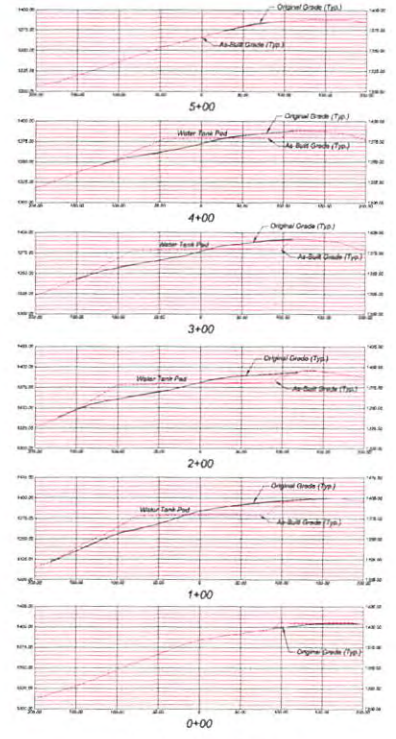
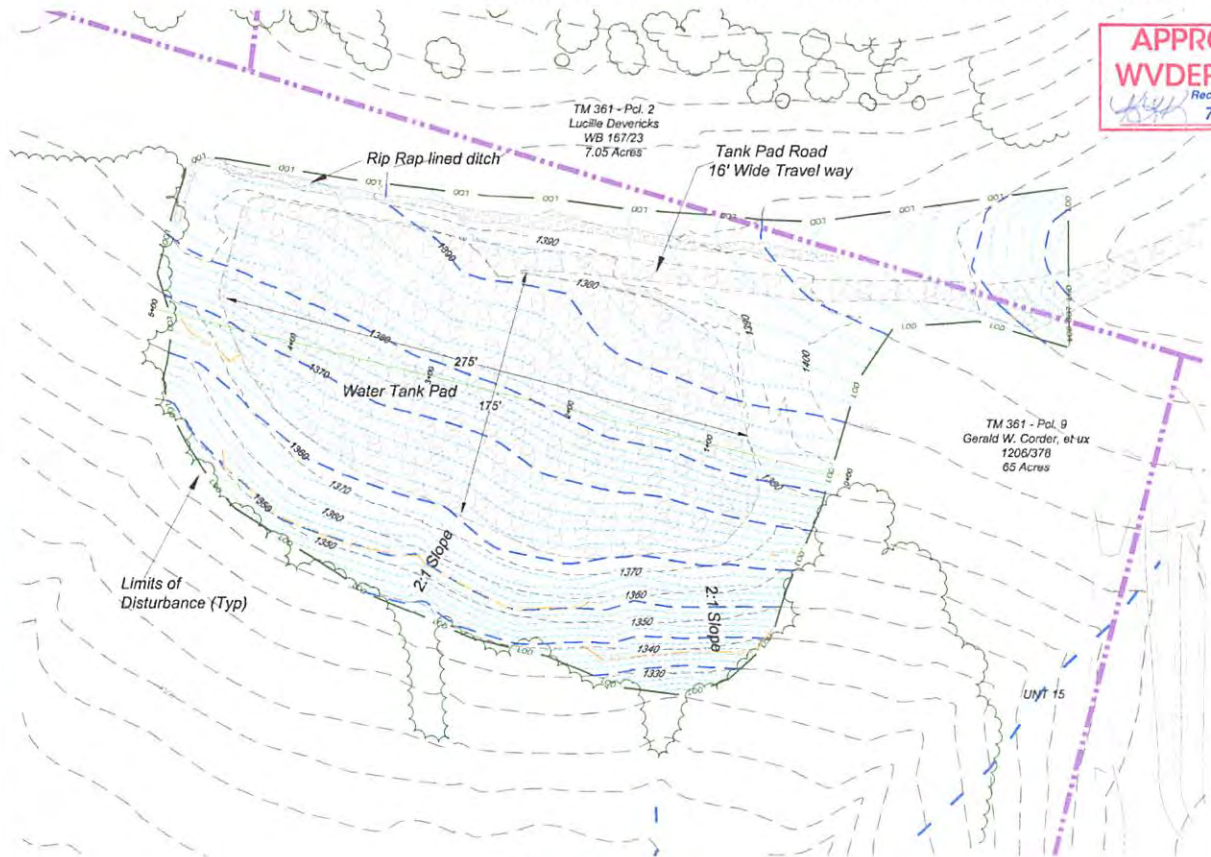
DATE	REVISIONS
2-3-17	Revised to add Cellar Design and new Tank Pad Reclamation Plan - All Sheet

Date: 5/24/16  
 Scale: 1" = 60'  
 Designed By: CCKW  
 File No.: Antero 256-11  
 Page 3 of 4

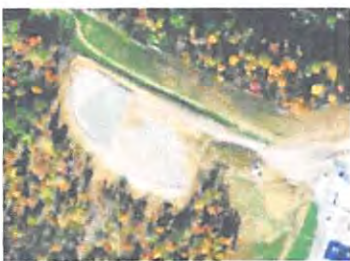
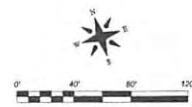


# WATER TANK PAD RECLAMATION PLAN

**APPROVED**  
**WVDEP OOG**  
Reclamation Plans  
7/26/2017



Tank Pad Cross Section  
Horizontal & Vertical Scale: 1" = 70'  
0' 70' 140' 210'



- TANK PAD RECLAMATION NOTES:**
1. Install 18" Silt Sox as shown.
  2. Remove Pad and road Stone and geofabric and dispose or reuse appropriately off-site.
  3. Strip Topsoil and stockpile on North side of pad.
  4. Grade Tank Pad to near original grades as shown. Slopes shall not be greater than 2:1.
  5. Re-topsoil slopes with no more than 2" of topsoil to be well tracked into the slopes.
  6. Seed and mulch.

**Legend**

Original 2' Contour	As-built Culvert W/ Inlet & Outlet Protection
Original 10' Contour	Existing Tree Line
Existing Tree Line	18" Silt Soxe
E - Existing Utility Line / Pole	Stoned Area
Surface Owner Property Line	
Existing Gas Line CL	
Stream Pier Pilelets	
LOD	
Limits of Disturbance	
As-built Tree Line	
As-built 2' Contour	
As-built 10' Contour	

DATE	REVISIONS	Date: 5/24/16
2-3-17	Revised to add Cellar Detail and new Tank Pad Reclamation Plan All Sheets	Scale: 1" = 40'
		Designed By: CKW
		File No: Antero 250-11
		Page 4 of 4

**WATER TANK PAD RECLAMATION PLAN**  
**CORDER EAST PAD RECLAMATION PLAN**  
UNION DISTRICT  
HARRISON COUNTY, WV

**L&W ENTERPRISES, INC.**  
1000 W. MAIN STREET, SUITE 100  
PETERSBURG, VA 23126  
PH: 804.753.4444  
FAX: 804.753.4444  
WWW.L&WENTERPRISES.COM

**ANTERO RESOURCES**  
THIS DOCUMENT PREPARED FOR  
ANTERO RESOURCES CORPORATION

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

**Professional Engineer**  
No. 1965  
Professional Engineer  
Geotechnical Engineering

**Professional Engineer**  
No. 1965  
Professional Engineer  
Civil Engineering

**Professional Engineer**  
No. 1965  
Professional Engineer  
Civil Engineering