



---

**west virginia** department of environmental protection

---

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

Earl Ray Tomblin, Governor  
Randy C. Huffman, Cabinet Secretary  
www.dep.wv.gov

April 10, 2015

**WELL WORK PERMIT**

**Horizontal 6A Well**

This permit, API Well Number: 47-8510206, issued to ANTERO RESOURCES CORPORATION, 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 all 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 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.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-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) 926-0499 ext. 1654.

James Martin

Chief

Operator's Well No: LEFT FORK UNIT 4H  
Farm Name: O'NEILL FAMILY TRUST ET AL  
**API Well Number: 47-8510206**  
**Permit Type: Horizontal 6A Well**  
Date Issued: 04/10/2015

**Promoting a healthy environment.**

**04/10/2015**

# PERMIT CONDITIONS

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

## CONDITIONS

---

1. Operator shall take additional measures with this permitted activity to avoid communication with offset wells. Such additional measures are described in the attached addendum. This addendum is part of the terms of the well work permit, and includes a description of depth and completed formations of offset wells. Also included is a description of monitoring activities that will take place during fracturing operations of the permitted well work.
1. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACOE). Through this permit, you are hereby being advised to consult with USACOE regarding this proposed activity.
2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.

## PERMIT CONDITIONS

6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
7. 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.
8. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.
9. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced on this well. Such notice shall be provided by sending an email to [DEPOOGNotify@wv.gov](mailto:DEPOOGNotify@wv.gov) within 30 days of commencement of drilling.

85-10206

4708510206

WW-6B  
(9/13)

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

1) Well Operator: Antero Resources Corporation 494488557 085- Ritchie Union Pullman 7.5'  
Operator ID County District Quadrangle

2) Operator's Well Number: Left Fork Unit 4H Well Pad Name: Lockhart Heirs West Pad

3) Farm Name/Surface Owner: O'Neill Family Trust, et al Public Road Access: CR 9

4) Elevation, current ground: ~1040' Elevation, proposed post-construction: 1019'

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

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Associated Pressure(s):  
Marcellus Shale: 6500' TVD, Anticipated Thickness- 50 ft., Associated Pressure- 3000#

8) Proposed Total Vertical Depth: 6500' TVD

9) Formation at Total Vertical Depth: Marcellus Shale

10) Proposed Total Measured Depth: 14600' MD

11) Proposed Horizontal Leg Length: 7632'

12) Approximate Fresh Water Strata Depths: 12', 52', 124', 258'

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

14) Approximate Saltwater Depths: 1712', 2040'

15) Approximate Coal Seam Depths: None Identified

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

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

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

Received  
Office of Oil & Gas

FEB 27 2015

Page 1 of 3  
*Durham*  
2-25-15

04/10/2015

4708510206

WW-6B  
(9/13)

18)

**CASING AND TUBING PROGRAM**

TYPE	Size	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling	INTERVALS: Left in Well	CEMENT: Fill-up (Cu. Ft.)
Conductor	20"	New	H-40	94#	105'	105'	CTS, 101 Cu. Ft.
Fresh Water	13-3/8"	New	J-55/H-40	54.5#/48#	310'	310'	CTS, 431 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	2405'	2405'	CTS, 979 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	20#	14600'	14600'	3636 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#		7100'	
Liners							

TYPE	Size	Wellbore Diameter	Wall Thickness	Burst Pressure	Cement Type	Cement Yield (cu. ft./k)
Conductor	20"	24"	0.438"	1530	Class A	1.18
Fresh Water	13-3/8"	17-1/2"	0.38"/0.33"	2730/1730	Class A	1.18
Coal	9-5/8"	12-1/4"	0.352"	3520	Class A	1.18
Intermediate						
Production	5-1/2"	8-3/4" & 8-1/2"	0.361"	12630	Lead-H/POZ & Tail - H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11200		
Liners						

**PACKERS**

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

Received  
Office of Oil & Gas

FEB 27 2015 2 of 3

*Dan Cannon*  
2-25-15

04/10/2015

WW-6B  
(9/13)

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

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

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

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

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

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 19.30 acres

22) Area to be disturbed for well pad only, less access road (acres): 6.54 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.



***Addendum for Antero pads in Ritchie County, WV***

Left Fork Unit 1H	Lockhart Heirs West Pad
Left Fork Unit 3H	Lockhart Heirs West Pad
Left Fork Unit 4H	Lockhart Heirs West Pad

The following outlines the process to be undertaken by Antero Resources prior to and during completion process of wells in Ritchie County.

- Investigate all wells within 1320' of new wells - for all identified Marcellus vertical wells and any existing well(s) with an interval that is less than 1500 feet from the deepest formation drilled (including, but not specific to the Alexander formation) to the top of Marcellus:
  - Contact operator of all wells
  - Confirm well status, producing horizon, well completion/stimulation information
  - Discuss plans to stimulate the horizontal Marcellus wells and the plans for monitoring potential impact on shallow wells
  - Make sure all vertical wells (with an interval that is less than 1500 feet from the deepest formation drilled to the top of Marcellus) have adequate wellhead equipment, including pressure gauges
  - Provide shallow well operator with frac dates and develop plan for monitoring during stimulation
  - If well waters out during frac, shut it in until after stimulation, and install adequate well control equipment prior to swabbing in the impacted shallow well
- Control fracturing parameters during job to limit fracture height growth
  - Limit rate and limit pressures for each segment of fracturing stages

4708510206

WW-9  
(9/13)

API Number 47 - 085 - \_\_\_\_\_  
Operator's Well No. Left Fork Unit 4H

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 494488557

Watershed (HUC 10) South Fork Hughes River Quadrangle Pullman 7.5'

Elevation 1019' County Ritchie District Union

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 offsite).

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 \_\_\_\_\_ )
- 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 \_\_\_\_\_)

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

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

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

Additives to be used in drilling medium? Please See Attachment

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

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

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

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

KARA QJACKENBUSH  
NOTARY PUBLIC  
STATE OF COLORADO  
NOTARY ID 28144028297  
MY COMMISSION EXPIRES JULY 21, 2018

Subscribed and sworn before me this 11 day of February, 2015

Kara Quackenkush Notary Public

My commission expires July 21, 2015

Received  
Office of Oil & Gas  
FEB 27 2015

*Dull*

04/10/2015



4708510206

Form WW-9

Operator's Well No. Left Fork Unit 4H

Antero Resources Corporation

Proposed Revegetation Treatment: Acres Disturbed 19.30 Acres Prevegetation pH 6.0

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

Well Pad (6.54) + Water Containment Pad (2.51) + Access Road 1 (5.24) + Access Road 3 (0.86) + Diversion Ditches (1.15) + Topsoil Spoil Area (0.94) + Material Spoil Area 1 (1.20) + Material Spot Area 2 (0.86) = 19.30 Acres

Temporary

Permanent

Seed Type	lbs/acre
Tall Fescue	45
Perennial Rye Grass	20

Seed Type	lbs/acre
Tall Fescue	45
Perennial Rye Grass	20

\*or type of grass seed requested by surface owner

\*or type of grass seed requested by surface owner

Attach:

Drawing(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided)

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Donna M. Brown

Comments: preserve a mulch all out area no less than 2 ton per acre maintain all M&S during operation

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Title: oil & gas inspector Date: 2-25-15

Field Reviewed?  Yes  No

Received  
Office of Oil & Gas  
FEB 27 2015

04/10/2015

***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

RECEIVED  
Office of Oil and Gas

FEB 13 2015

WV Department of  
Environmental Protection 04/10/2015

470851020  
4708510206

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

RECEIVED  
Office of Oil and Gas

FEB 13 2015

WV Department of  
Environmental Protection

04/10/2015

4708510206



**911 ADDRESS**  
**1132 Oxford Rd.**  
**Pullman, WV 26421**

## **Well Site Safety Plan**

### **Antero Resources**

**Well Name:** Left Fork Unit 1H, Left Fork Unit 2H, Left Fork Unit 3H, Left Fork Unit 4H, Harris Unit 1H & Harris Unit 2H

**Pad Location:** LOCKHART HEIRS WEST PAD  
Ritchie County/ Union District

**GPS Coordinates:** Lat 39°11'23.4996"/Long 80°55'40.7532" (NAD83)

#### **Driving Directions:**

**FROM EAST** - From the intersection of I-79 and Hwy 50 near Bridgeport WV, head west on Hwy 50 for ~39.6 miles. Turn LEFT onto W Virginia 74 S, and follow for ~7.4 miles. Turn LEFT onto Co Rd 9/Main St and continue for ~1.1 miles onto Co Rd 9/Harrisville-Pullman Oxford. Look for rig signs and location on the left. Drill site is right off the road.

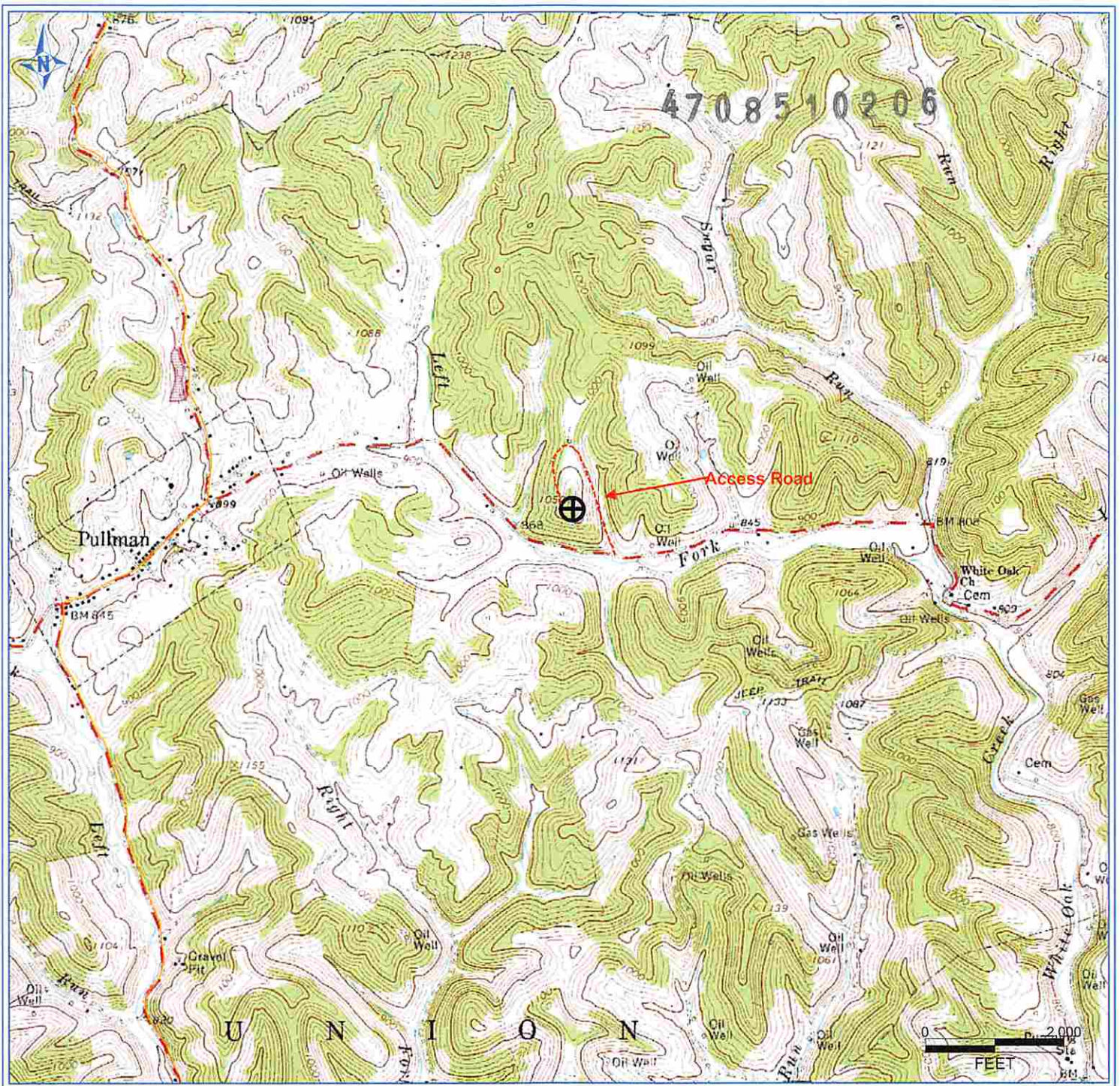
**FROM WEST** - From the intersection of I-77 and Hwy 50 near Parkersburg WV, head east on Hwy 50 for ~32.3 miles. Turn RIGHT onto W Virginia 74 S, and follow for ~7.4 miles. Turn LEFT onto Co Rd 9/Main St and continue for ~1.1 miles onto Co Rd 9/Harrisville-Pullman Oxford. Look for rig signs and location on the left. Drill site is right off the road.

Received  
Office of Oil & Gas

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

FEB 27 2015

*D. Williams*  
2-25-15 04/10/2015



PETRA 6/26/2012 2:30:01 PM

RECEIVED  
Office of Oil and Gas

FEB 13 2015

WV Department of  
Environmental Protection

Antero Resources Corporation

APPALACHIAN BASIN

Left Fork Unit 4H  
Ritchie County



REMARKS  
QUADRANGLE: PULLMAN  
WATERSHED: SOUTH FORK HUGHES RIVER  
DISTRICT: UNION

Date: 7/05/2012 **04/10/2015**

WEST VIRGINIA



★ PROJECT LOCATION

# LOCKHART HEIRS WEST WELL AND WATER CONTAINMENT PAD SITE DESIGN & CONSTRUCTION PLAN, EROSION & SEDIMENT CONTROL PLANS

ANTERO RESOURCES CORPORATION

**APPROVED WV DEP OOG**  
 3/30/2015  
 API# 8510204  
 API# 8510205  
 API# 8510206

## PROJECT CONTACTS

### PROJECT OWNER

ANTERO RESOURCES  
 1015 WYNDOPP STREET  
 DENVER, CO 80202

CONTACT: ANTHONY SMITH  
 FIELD ENGINEER  
 304.993.465 OFFICE  
 304.978.198 CELL

CONTACT: JOHN KAVCÁK  
 ENGINEER  
 817.268.1553

### LOCATION SURVEYOR

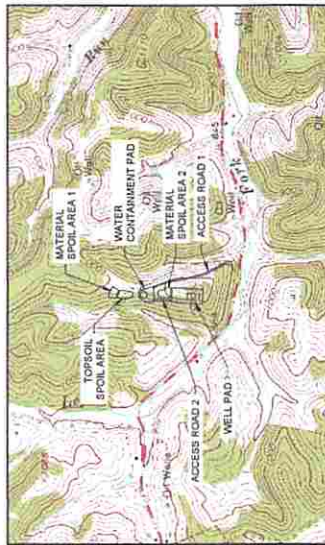
WHITE BROTHERS CONSULTING, LLC  
 CONTACT: ERIC SMITH, INC.  
 447 CALL ROAD, SUITE 110  
 CHARLES TOWN, WV 26030  
 304.250.9484

### ENGINEER OF RECORD

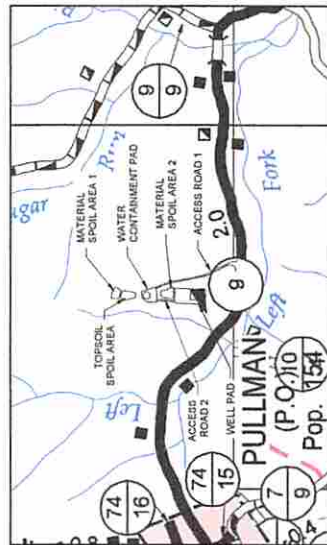
ANTERO RESOURCES  
 CONTACT: JOHN KAVCÁK  
 ENGINEER  
 817.268.1553  
 3000 GARDEN WAY PE AKERS & PE  
 MORRISTOWN, NJ 07960  
 919.765.0011 OFFICE  
 919.762.1941 FAX

### ENVIRONMENTAL/ DELINEATION BOUNDARY

ALLSTAR ECOLOGY, LLC  
 CONTACT: JENNY BURR, INC.  
 1103 BURTON, WV 26030  
 304.612.7958 CELL



NORTH MERIDIAN REFERENCED TO NAD83 WEST VIRGINIA STATE PLANE NORTH ZONE



**PLAN REPRODUCTION WARNING**  
 THE PLANS HAVE BEEN CREATED ON A 9" X 12" SHEET. FOR REDUCTIONS, REFER TO DIMENSIONAL SCALE.  
 \*DIMENSIONS HAVE BEEN CHECKED FOR ALL COLOR FOLDING. ANY SET CHANGES ARE AT THE USER'S RISK.  
 \*DIMENSIONS ARE APPROXIMATE. FOR ACCURATE DIMENSIONS, SCALE FOLDING.

DESCRIPTION	NAD 83 (WV NORTH)		UTM ZONE 17 (METERS)	
	LATITUDE	LONGITUDE	NORTHING	EASTING
CENTER OF WELL PAD	30.168601	-80.927987	4337846.5301	506219.0000
CENTER OF WATER CONTAINMENT PAD	30.151807	-80.927969	4336052.2401	506220.6588
ACCESS ROAD ENTRANCE	30.187705	-80.922591	4337615.8834	506391.6130

ACCESS ROAD	LENGTH (FEET)	TOTAL	
		DESCRIPTION	FEET
ACCESS ROAD 1	1.422		
ACCESS ROAD 2	295		
		<b>TOTAL</b>	1.717

FLOODPLAIN CONDITIONS	NO	YES
DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN FLOODPLAIN:	NO	NO
PERMIT NEEDED FROM COUNTY FLOODPLAIN COORDINATOR:	NO	NO
HE-RAS STUDY COMPLETED:	N/A	N/A
FLOODPLAIN SHOWN ON DRAWINGS:	N/A	N/A
FIRM MAP NUMBER(S) FOR SITE:	54080C0225C	
ACREAGES OF CONSTRUCTION IN FLOODPLAIN:	N/A	1.717

**DESIGN CERTIFICATION**  
 THE DRAWINGS, CONSTRUCTION NOTES, AND REFERENCE DIAGRAMS ATTACHED HERETO HAVE BEEN PREPARED IN ACCORDANCE WITH THE WEST VIRGINIA CODE OF STATE RULES, DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS §34-4.  
**MIN-109 PERMIT**  
 ANTERO RESOURCES SHALL OBTAIN AN ENVIRONMENTAL PERMIT FROM THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, DIVISION OF HIGHWAYS, PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES.



04/10/2015

Electronic version of these plans may be viewed at: Q:\OIL\_GAS\SAS\FILES\REVIEWS\

REVISIONS

REV	DESCRIPTION	DATE

ISSUED FOR CONSTRUCTION

SCALE VERIFICATION  
 1 INCH = 100 FEET  
 ADJUST SCALE ACCORDING TO THE PAPER DIMENSIONS

COVER PAGE & LOCATION MAP  
 LOCKHART HEIRS WEST WELL & W.C. PAD  
 PULLMAN DISTRICT, RITCHIE COUNTY  
 WEST VIRGINIA

Antero Resources

CONSTRUCTION

PROJECT NO. 2012018  
 SHEET NO. 1  
 SHEETS TOTAL 2

DATE: 03-09-15  
 DESIGNED BY: JAC  
 CHECKED BY: JAC  
 APPROVED BY: JAC

REV	DESCRIPTION	DRAWN	CHECKED	DATE

**ISSUED FOR CONSTRUCTION**

**SCALE VERIFICATION**

1 INCH = 30 FEET  
ADJUST SCALE ACCORDING TO ACTUAL DIMENSIONS

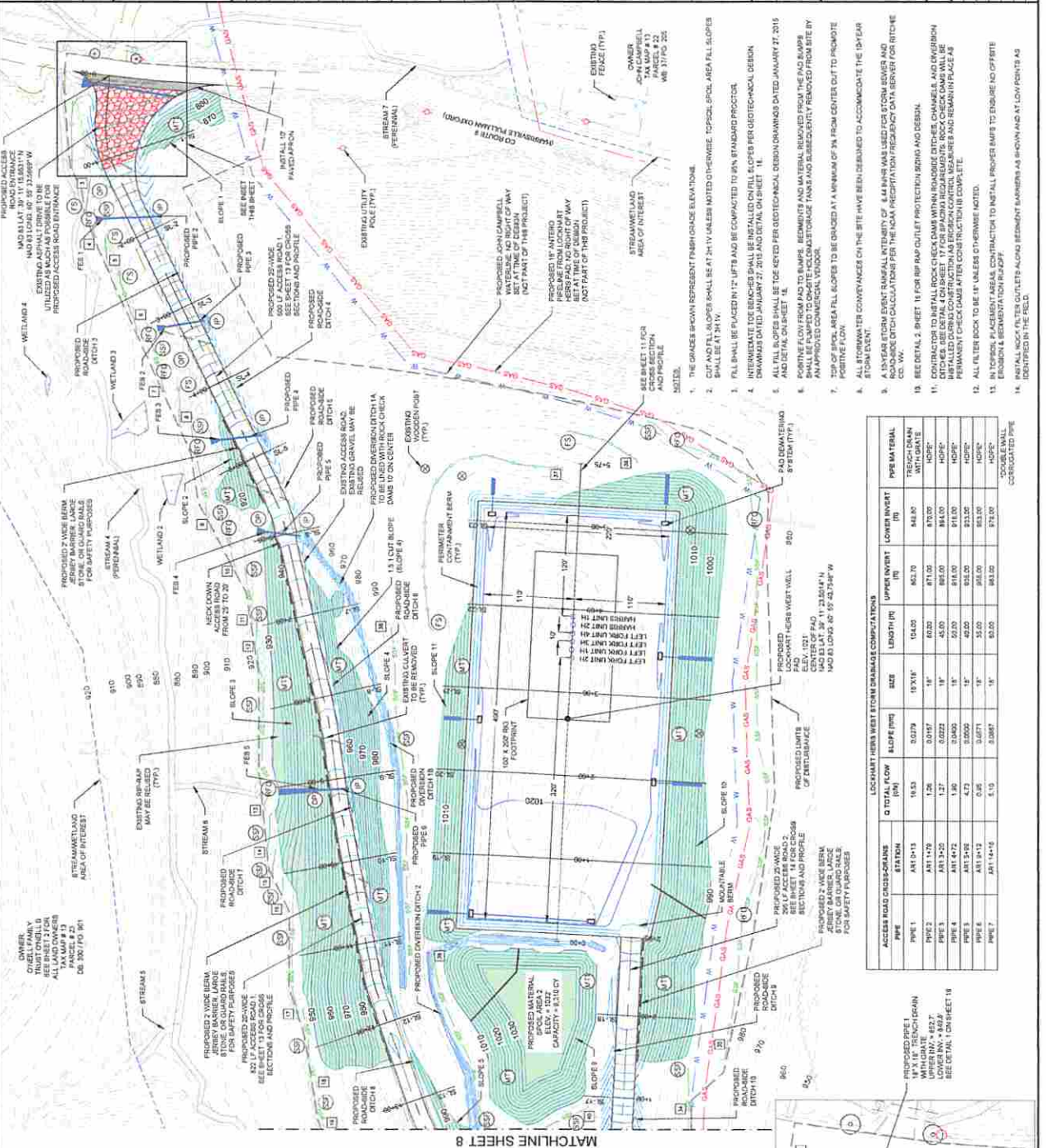
ORIGINAL DRAWING SIZE IS 24" x 36"

**SITE PLAN**

LOCKHART HERS WEST WELL & W.C. PAD  
RITCHIE COUNTY  
WEST VIRGINIA



CONSTRUCTION	
PROJECT NO.	20332S
ISSUE DATE	3/30/2015
DESIGNED BY	CFH
DRAWN BY	JCH
CHECKED BY	JCH
APPROVED BY	JCH



**LEGEND**

1500	
1500	EXISTING CONTOUR
1500	PROPOSED CONTOUR
1500	1% TYPICAL SLOPE
1500	EXISTING UTILITY
1500	PROPOSED UTILITY
1500	EXISTING FENCE
1500	PROPOSED FENCE
1500	EXISTING 24" WATER MAIN
1500	PROPOSED 24" WATER MAIN
1500	EXISTING 12" WATER MAIN
1500	PROPOSED 12" WATER MAIN
1500	EXISTING 6" WATER MAIN
1500	PROPOSED 6" WATER MAIN
1500	EXISTING 4" WATER MAIN
1500	PROPOSED 4" WATER MAIN
1500	EXISTING 2" WATER MAIN
1500	PROPOSED 2" WATER MAIN
1500	EXISTING 1" WATER MAIN
1500	PROPOSED 1" WATER MAIN
1500	EXISTING 6" SANITARY SEWER
1500	PROPOSED 6" SANITARY SEWER
1500	EXISTING 4" SANITARY SEWER
1500	PROPOSED 4" SANITARY SEWER
1500	EXISTING 3" SANITARY SEWER
1500	PROPOSED 3" SANITARY SEWER
1500	EXISTING 2" SANITARY SEWER
1500	PROPOSED 2" SANITARY SEWER
1500	EXISTING 1.5" SANITARY SEWER
1500	PROPOSED 1.5" SANITARY SEWER
1500	EXISTING 1" SANITARY SEWER
1500	PROPOSED 1" SANITARY SEWER
1500	EXISTING 8" POTABLE WATER
1500	PROPOSED 8" POTABLE WATER
1500	EXISTING 6" POTABLE WATER
1500	PROPOSED 6" POTABLE WATER
1500	EXISTING 4" POTABLE WATER
1500	PROPOSED 4" POTABLE WATER
1500	EXISTING 3" POTABLE WATER
1500	PROPOSED 3" POTABLE WATER
1500	EXISTING 2" POTABLE WATER
1500	PROPOSED 2" POTABLE WATER
1500	EXISTING 1.5" POTABLE WATER
1500	PROPOSED 1.5" POTABLE WATER
1500	EXISTING 1" POTABLE WATER
1500	PROPOSED 1" POTABLE WATER
1500	EXISTING 8" GAS
1500	PROPOSED 8" GAS
1500	EXISTING 6" GAS
1500	PROPOSED 6" GAS
1500	EXISTING 4" GAS
1500	PROPOSED 4" GAS
1500	EXISTING 3" GAS
1500	PROPOSED 3" GAS
1500	EXISTING 2" GAS
1500	PROPOSED 2" GAS
1500	EXISTING 1.5" GAS
1500	PROPOSED 1.5" GAS
1500	EXISTING 1" GAS
1500	PROPOSED 1" GAS
1500	EXISTING 4" ELECTRIC
1500	PROPOSED 4" ELECTRIC
1500	EXISTING 2" ELECTRIC
1500	PROPOSED 2" ELECTRIC
1500	EXISTING 1.5" ELECTRIC
1500	PROPOSED 1.5" ELECTRIC
1500	EXISTING 1" ELECTRIC
1500	PROPOSED 1" ELECTRIC
1500	EXISTING 6" CABLE TELEVISION
1500	PROPOSED 6" CABLE TELEVISION
1500	EXISTING 4" CABLE TELEVISION
1500	PROPOSED 4" CABLE TELEVISION
1500	EXISTING 3" CABLE TELEVISION
1500	PROPOSED 3" CABLE TELEVISION
1500	EXISTING 2" CABLE TELEVISION
1500	PROPOSED 2" CABLE TELEVISION
1500	EXISTING 1.5" CABLE TELEVISION
1500	PROPOSED 1.5" CABLE TELEVISION
1500	EXISTING 1" CABLE TELEVISION
1500	PROPOSED 1" CABLE TELEVISION

**BITUMINOUS DRAINAGE LEGEND**

FEB	PLAIED EMB SECTION
1500	
1500	
1500	

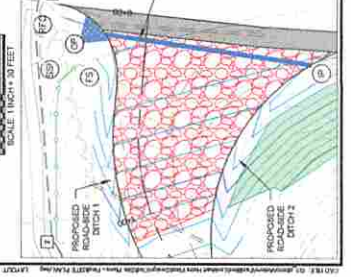
**APPROVED WYDEP OOG 3/30/2015**

**ACCESS ROAD PROFILES**

PIPE #	SIZE (IN)	SLOPE (PER)	LENGTH (FT)	UPPER INVERT (FT)	LOWER INVERT (FT)	PIPE MATERIAL
PIPE 1	18"	0.0157	104.00	862.70	848.80	TRENCH GRANITE WITH GRATE
PIPE 2	18"	0.0222	60.00	870.00	858.00	HDPPE
PIPE 3	18"	0.0000	45.00	895.00	895.00	HDPPE
PIPE 4	18"	0.0000	50.00	818.00	818.00	HDPPE
PIPE 5	18"	0.0000	49.00	838.00	838.00	HDPPE
PIPE 6	18"	0.0001	51.00	880.00	880.00	HDPPE
PIPE 7	18"	0.0001	51.00	881.00	881.00	HDPPE

**LOCKHART HERS WEST TYPICAL DRAINAGE COMPUTATIONS**

PIPE #	SIZE (IN)	SLOPE (PER)	LENGTH (FT)	UPPER INVERT (FT)	LOWER INVERT (FT)	PIPE MATERIAL
PIPE 1	18"	0.0157	104.00	862.70	848.80	TRENCH GRANITE WITH GRATE
PIPE 2	18"	0.0222	60.00	870.00	858.00	HDPPE
PIPE 3	18"	0.0000	45.00	895.00	895.00	HDPPE
PIPE 4	18"	0.0000	50.00	818.00	818.00	HDPPE
PIPE 5	18"	0.0000	49.00	838.00	838.00	HDPPE
PIPE 6	18"	0.0001	51.00	880.00	880.00	HDPPE
PIPE 7	18"	0.0001	51.00	881.00	881.00	HDPPE



LATITUDE 39°12'30"

3,261'

4,025' TO BOTTOM HOLE

LATITUDE 39°15'00"

LONGITUDE 80°55'00"

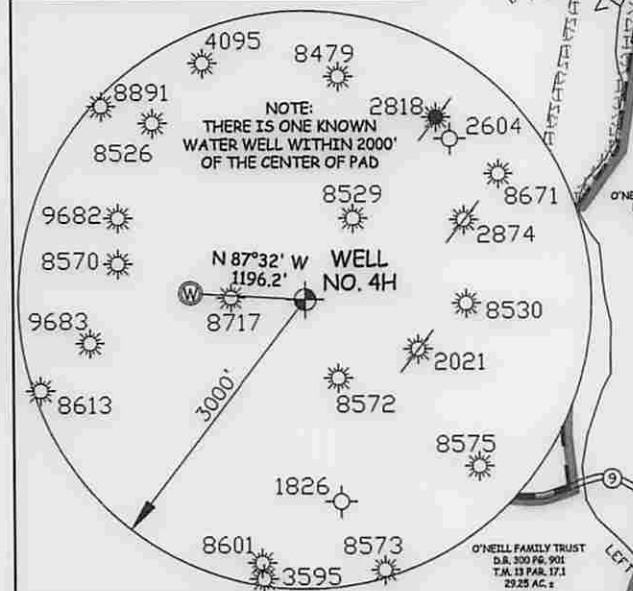
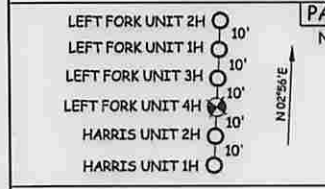
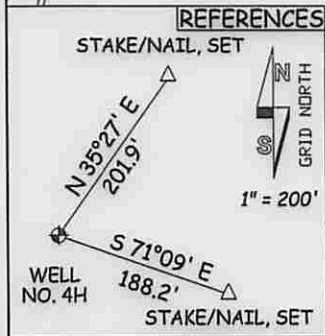
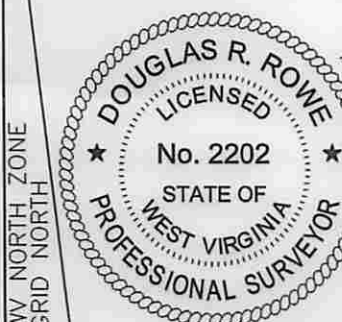
6,862'

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

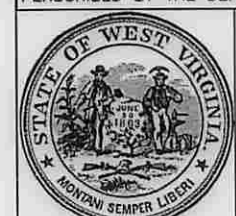
### Antero Resources Corporation Well No. Left Fork Unit 4H

**NOTES:**  
 WELL 4H TOP HOLE INFORMATION:  
 N: 254,346ft E: 1,595,208ft  
 LAT: 39°11'22.18" LON: 80°55'41.42"  
 BOTTOM HOLE INFORMATION:  
 N: 262,248ft E: 1,594,568ft  
 LAT: 39°12'40.18" LON: 80°55'51.14"  
 WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

(NAD) 83 (UTM) ZONE 17 COORDS:  
 WELL 4H TOP HOLE INFORMATION:  
 N: 4,337,817m E: 506,218m  
 BOTTOM HOLE INFORMATION:  
 N: 4,340,221m E: 505,983m



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 PERSCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



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

WILLOW LAND SURVEYING PLLC  
266 HUSHERS RUN RD PENNSBORO WEST VIRGINIA 26415

DATE 01/09/15  
OPERATOR'S WELL# LEFT FORK UNIT #4H

**LEGEND**

- Surface Owner Boundary Lines +/-
- Interior Surface Tracts +/-
- Existing Fence
- Found monument, as noted

WELL TYPE: OIL \_\_\_ GAS  LIQUID INJECTION \_\_\_ WASTE DISPOSAL \_\_\_ API WELL # 47 - 085 - 1026046A

(IF "GAS") PRODUCTION  STORAGE \_\_\_ DEEP \_\_\_ SHALLOW  STATE COUNTY PERMIT

LOCATION: ELEVATION 1,019' WATERSHED LEFT FORK QUADRANGLE PULLMAN 7.5' DISTRICT UNION COUNTY RITON

SURFACE OWNER O'NEILL FAMILY TRUST ET AL ACREAGE 300.45 ACRES +/-

OIL & GAS ROYALTY OWNER O'NEILL FAMILY TRUST ET AL; DENNIS HADDOX ET AL; LEASE ACREAGE 517.83 ACRES+; 41.75 ACRES+; MICHAEL P. HEASTER ET AL; BERNARD RICHARDS ET AL; I.S. HALL ET AL; J.B. ELLIOTT ET UX 234.5 ACRES+; 214 ACRES+; 100 ACRES+; 70 ACRES+

PROPOSED WORK: DRILL  CONVERT \_\_\_ DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION \_\_\_ PERFORATE NEW FORMATION  OTHER PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_ PLUG & ABANDON CLEAN OUT & REPLUG

TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,500' TVD 14,600' MD

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



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>O'Neill Family Trust, et al Lease</u></b> ✓			
Daniel J. O'Neill, Trustee for the O'Neill Family Trust, et al	Key Oil Company	1/8	0252/1053
Key Oil Company	Antero Resources Appalachian Corporation	*Partial Assignment of Oil & Gas Leases	0253/0747
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<b><u>Dennis Haddox, et al Lease</u></b> ✓			
Dennis Haddox	Allstate Energy Corp.	1/8	0129/0455
Allstate Energy Corp.	Antero Resources Corporation	*Partial Assignment of Oil & Gas Leases	0280/0668
<b><u>Michael P. Heaster, et al Lease</u></b> ✓			
Michael Heaster	Key Oil Company	1/8	0223/0667
Key Oil Company	Antero Resources Appalachian Corporation	*Partial Assignment of Oil & Gas Leases	0253/0747
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<b><u>Bernard Richards, et al Lease</u></b> ✓			
Bernard Richards & Fredia L. Richards	P.D. Farr, II	1/8	0121/0261
P.D. Farr, II	Ferrell Prior	Assignment	0121/0533
Ferrell Prior	Elaine Davis	Assignment	0121/0553
Elaine Davis	Ritchie Petroleum Corporation, Inc.	Assignment	0228/0232
Ritchie Petroleum Corporation	Ed. Broome, Inc.	Assignment	0230/307
Ed. Broome, Inc.	Antero Resources Appalachian Corporation	Assignment	0255/0578
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<b><u>I.S. Hall, et al Lease</u></b>			
I.S. Hall, et al	T. F. Daly	1/8	0031/0511
T.F. Daly	Carnegie Natural Gas Company	Assignment	Recital in TO 1547
Carnegie Natural Gas Company	Carnegie Production Company	Assignment	0228/0859
Carnegie Production Company	EQT Production Company	Name Change	Exhibit 2
EQT Production Company	Antero Resources Appalachian Corporation	Assignment	0264/0477
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<b><u>W.G. Burgan, et al Lease</u></b>			
W. G. Burgan, et al	Key Oil Company	1/8	0224/0649
Key Oil Company	Antero Resources Appalachian Corporation	*Partial Assignment of Oil & Gas Leases	0253/0747
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1

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

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

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

- (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>J.B. Elliot, et ux Lease</u>	J.B. Elliot, et ux Carnegie Natural Gas Company	Carnegie Natural Gas Company Carnegie Production Company	1/8 Assignment, Bill of Sale	0041/0184 0228/0859
	Carnegie Production Company EQT Production Company Antero Resources Appalachian Corporation	EQT Production Company Antero Resources Appalachian Corporation Antero Resources Corporation	Name Change Assignment Name Change	Exhibit 2 0267/0477 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**

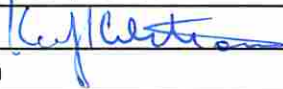
The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- 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.

RECEIVED  
Office of Oil and Gas

FEB 13 2015

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

WW-60  
(7-01)

DATE: April 6, \_\_\_\_\_, 20 15  
OPERATOR'S  
WELL NO. Left Fork Unit 4H

API NO: 47- 085  
State County Permit No.

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

A F F I D A V I T

State of Colorado

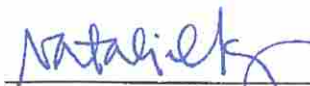
County of Denver

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

Signed: 

NATALIE KOMP  
NOTARY PUBLIC  
STATE OF COLORADO  
NOTARY ID # 20144028170  
MY COMMISSION EXPIRES JULY 18, 2016

Taken, subscribed and sworn to before me this 6<sup>th</sup> day of April, 20 15.

  
Notary Public

My Commission expires: July 18, 2018

I. S. HALL ET UX <sup>1916</sup>  
TO AN EXTENSION  
CARNEGIE NATL. GAS CO



Whereas, I. S. Hall and Hattie A. Hall, his wife, by agreement dated 1st day of March A.D. 1907, and of record in Ritchie County, in Deed Book, Vol. 31, page 511, leased for Oil and Gas purposes to T. F. Daley a certain tract of land in Union District, Ritchie County, West Virginia, containing 100 acres, bounded substantially as follows:

- On the North by lands of Aaron Ash
- On the East by lands of T. H. Baker
- On the South by lands of T. H. Baker
- On the West by lands of A. G. Zinn and Lowther Hrs.

for the term of ten years;

And Whereas, The said Lessors and the Carnegie Natural Gas Company, Assignees, have agreed to an extension of said lease for a period beyond the term therein fixed. Therefore, in consideration of One Dollar in hand paid by the Carnegie Natural Gas Company, said I. S. Hall and Hattie A. Hall, his wife, do hereby demise and let to said Gas Company, its successors and assigns, the land described in said Lease for the further term of Five years, and thereafter as long as Oil or Gas is produced in paying quantities, for the purpose and upon the terms, conditions and provisions set forth in said recited Lease; the intention being to hereby extend said lease in all its terms and provisions except the carrying rental shall be \$37.50 per quarter instead of \$25.00 and if any well shall have a pressure of Sixty pounds the first minute when gauged in or through the 6-5/8 inch casing, the price for same shall be One hundred Dollars per quarter until the pressure of same as gauged as above mentioned shall become less than sixty pounds, then the price to be \$75.00 qr., for the further period of Five years, and as much longer as Oil or Gas is produced in paying quantities.

Executed, Sealed and Delivered by the parties hereto this 31 day of January, 1917.

I. S. Hall	(Seal)
Hattie A. Hall	(Seal)
	(Seal)

State of West Virginia,

County of Ritchie, to-wit:

I, L. S. Clayton, a Notary Public of said County of Ritchie, do certify that I. S. Hall and Hattie A. Hall, his wife, whose names are signed to the within writing, bearing date the 31st day of January 1917, have this day acknowledged the same before me in my said County of Ritchie.

Given under my hand this 31st day of January, 1917.  
(N.P. Seal)  
My commission expires August 26th, 1920.

L. S. Clayton, Notary Public

State of West Virginia,

Ritchie County Court Clerk's Office, September 27th, 1918.

The foregoing writing, with the certificate of acknowledgment thereto, was this day admitted to record in said office.

Teste: J. S. [Signature] Clerk.

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  
IN THE OFFICE OF  
SECRETARY OF STATE  
Tel: (304)558-8000  
Fax: (304)558-8381  
Website: [www.wvscs.com](http://www.wvscs.com)  
E-mail: [business@wvscs.com](mailto:business@wvscs.com)

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

APPLICATION FOR  
AMENDED CERTIFICATE  
OF AUTHORITY

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

\*\*\*\* 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:

- 1. Name under which the corporation was authorized to transact business in WV: Antero Resources Appalachian Corporation
- 2. Date Certificate of Authority was issued in West Virginia: 6/25/2008
- 3. Corporate name has been changed to: Antero Resources Corporation  
(Attach one Certified Copy of Name Change as filed in home State of incorporation.)
- 4. Name the corporation elects to use in WV: Antero Resources Corporation  
(due to home state name not being available)
- 5. Other amendments:  
(attach additional pages if necessary)

6. 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.)

<u>Alvyn A. Schopp</u>	<u>(303) 367-7310</u>
Contact Name	Phone Number

7. Signature information (See below *\*Important Legal Notice Regarding Signature\**):

Print Name of Signer: <u>Alvyn A. Schopp</u>	Title/Capacity: <u>Authorized Person</u>
Signature: <u><i>Alvyn A. Schopp</i></u>	Date: <u>June 10, 2013</u>

*\*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.

RECEIVED  
Office of Oil and Gas

FEB 13 2015

# State of West Virginia



## Certificate

*I, Natalie E. Tennant, Secretary of State of the  
State of West Virginia, hereby certify that*

**EQT PRODUCTION COMPANY**

has filed a "Certificate of Registration of Trade Name" in my office according to the provisions of Chapter 47 of the West Virginia Code and was found to conform to law.

Therefore, I hereby issue this

### CERTIFICATE OF REGISTRATION OF TRADE NAME

authorizing it to transact business in West Virginia under the assumed name of

**CARNEGIE PRODUCTION COMPANY**



RECEIVED  
Office of Oil and Gas

FEB 13 2015

WV Department of  
Environmental Protection

*Given under my hand and the  
Great Seal of the State of  
West Virginia on this day of  
April 9, 2009*

*Natalie E. Tennant*

Secretary of State

4708510206



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

February 11, 2015

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: Left Fork Unit 4H  
Quadrangle: Pullman 7.5<sup>+</sup>  
Ritchie County/Union District, West Virginia

Mr. Martin:

Antero Resources Corporation (Antero) is submitting the following application for a new well work permit for the Left Fork Unit 4H 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 Left Fork Unit 4H 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 "Haley West", is written over a horizontal line.

Haley West  
Landman

RECEIVED  
Office of Oil and Gas

FEB 13 2015

WV Department of  
Environmental Protection

04/10/2015

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

Date of Notice Certification: 02/10/2015

API No. 47- 085 - \_\_\_\_\_

Operator's Well No. Left Fork Unit 4H

Well Pad Name: Lockhart Heirs West 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>506218m</u>
County: <u>Ritchie</u>		Northing: <u>4337817m</u>
District: <u>Union</u>	Public Road Access: <u>CR 9</u>	
Quadrangle: <u>Pullman 7.5'</u>	Generally used farm name: <u>O'Neill Family Trust, et al</u>	
Watershed: <u>South Fork Hughes River</u>		

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

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

RECEIVED  
Office of Oil and Gas  
FEB 13 2015  
WV Department of  
Environmental Protection

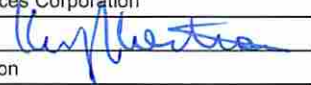
**Required Attachments:**

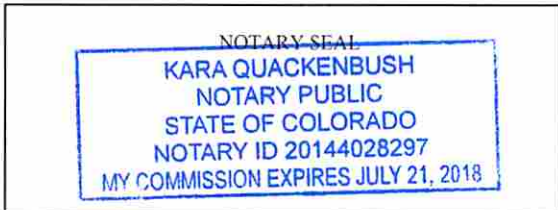
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication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



**Certification of Notice is hereby given:**

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

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



Subscribed and sworn before me this 10 day of February 2015  
Kara Quackenbush Notary Public  
 My Commission Expires July 21, 2018

**Oil and Gas Privacy Notice:**

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

RECEIVED  
Office of Oil and Gas

FEB 13 2015

WV Department of  
Environmental Protection

WW-6A  
(9-13)

4708510206

API NO. 47- 085 -  
OPERATOR WELL NO. Left Fork Unit 4H  
Well Pad Name: Lockhart Heirs West Pad

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: 2/11/2015 Date Permit Application Filed: 2/11/2015

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: (O'Neill Family Trust, et al)

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

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

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

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

SURFACE OWNER(s) (Impoundments or Pits)

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

COAL OWNER OR LESSEE

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

COAL OPERATOR

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

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

Name: John A. and Linda J. Campbell  
Address: 505 Oxford Road  
Pullman, WV 26421

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

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

\*Please attach additional forms if necessary

RECEIVED  
Office of Oil and Gas

FEB 13 2015

04/10/2015

**Notice is hereby given:**

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

**This Notice Shall Include:**

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

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

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

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

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

**Well Location Restrictions**

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

RECEIVED  
Office of Oil and Gas

FEB 13 2015

WV Department of  
Environmental Protection

WW-6A  
(8-13)

4708510206  
API NO. 47-085 -  
OPERATOR WELL NO. Left Fork Unit 4H  
Well Pad Name: Lockhart Helrs West Pad

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.**

RECEIVED  
Office of Oil and Gas

FEB 13 2015

WV Department of  
Environmental Protection  
04/10/2015

4708510206

WW-6A  
(8-13)

API NO. 47-085 -  
OPERATOR WELL NO. Left Fork Unit 4H  
Well Pad Name: Lockhart Heirs West Pad

**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.

RECEIVED  
Office of Oil and Gas

FEB 13 2015

WV Department of  
Environmental Protection

04/10/2015

WW-6A  
(8-13)

4708510206

API NO. 47-085  
OPERATOR WELL NO. Left Fork Unit 4H  
Well Pad Name: Lockhart Heirs West Pad

**Notice is hereby given by:**

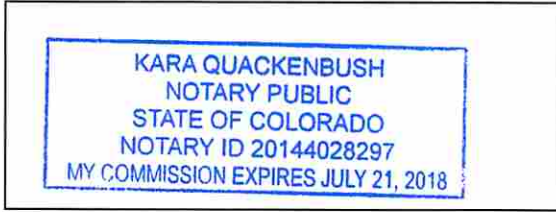
Well Operator: Antero Resources Corporation  
Telephone: (303) 357-7310  
Email: asteele@anteroresources.com



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 11 day of February 2015.  
Kara Quackenbush Notary Public  
My Commission Expires July 21, 2018

RECEIVED  
Office of Oil and Gas

FEB 13 2015

WV Department of  
Environmental Protection

04/10/2015

**WW-6A Notice of Application Attachment:**

4708510206

**Surface Owners:**

**Owner:** Nancy Louise Antill  
**Address:** 114 Melinda Dr.  
Wintersville, OH 43953

**Owner:** Mary Frances Harms  
**Address:** 4368 Steuben Woods Dr.  
Steubenville, OH 43953

**Owner:** Kathleen R. Hooven  
**Address:** 4 Amador  
Newport Beach, CA 92657

**Owner:** Karah L. Loftin  
**Address:** 226 Surrey Court  
O Fallon, MO 63366

**Owner:** Kelcie J. Loftin  
**Address:** 226 Surrey Court  
O Fallon, MO 63366

**Owner:** Daniel J. O'Neill  
**Address:** 30640 Rapids Hollow  
Gravois Mills, MO 65037

**Owner:** Sean T. O'Neill  
**Address:** 30640 Rapids Hollow  
Gravois Mills, MO 65037

**Owner:** Timothy R. O'Neill  
**Address:** P. O. Box 5063  
Fort Myers Beach, FL 33932

**Owner:** Romarlo, LLC  
**Address:** 757 SE 17<sup>th</sup> Street  
Suite 1085  
Fort Lauderdale, FL 33316

**Owner:** Sharon S. O'Neill  
**Address:** 696 San Ramon Valley Blvd, #510  
Danville, CA 94526

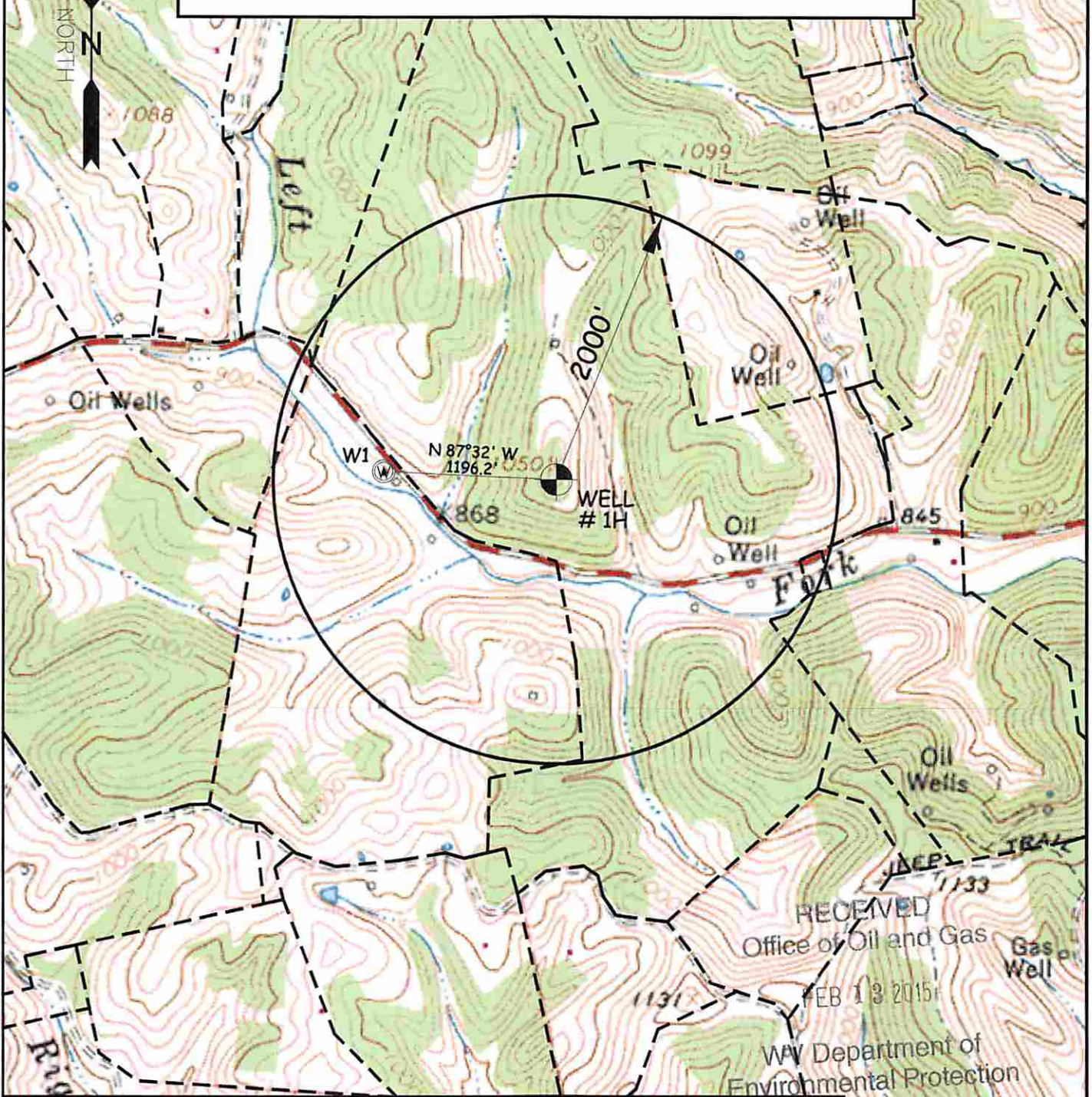
**Owner:** O'Neill Family Trust c/o Betty O'Neill  
Newsom, Trustee & Daniel O'Neill  
**Address:** 30640 Rapids Hollow  
Gravois Mills, MO 65037

RECEIVED  
Office of Oil and Gas

FEB 13 2015

WV Department of  
Environmental Protection 04/10/2015

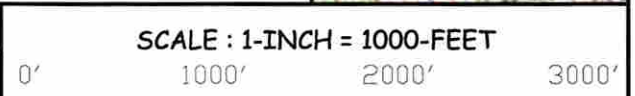
**LOCKHART HEIRS WEST PAD  
ANTERO RESOURCES  
CORPORATION**



WELL	SURFACE OWNER	ADDRESS
W1	John A. & Linda J. Campbell	505 Oxford Rd. Pullman, WV 26421

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

TOPO SECTION(S) OF :  
  
PULLMAN 7.5' QUAD



DATE: 01/09/15

DRAWN BY: D.L.P.



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

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

**Notice Time Requirement:** Notice shall be provided at least TEN (10) days prior to filing a permit application.  
**Date of Notice:** 01/06/2015      **Date Permit Application Filed:** 02/11/2015

**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 ATTACHED  
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>506,217m (Approximate Pad Center)</u>
County:	<u>Ritchie</u>	UTM NAD 83 Northing:	<u>4,337,808m (Approximate Pad Center)</u>
District:	<u>Union</u>	Public Road Access:	<u>CR 9</u>
Quadrangle:	<u>Pullman 7.5'</u>	Generally used farm name:	<u>O'Neill Family Trust, et al</u>
Watershed:	<u>South Fork Hughes River</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: astele@anteroresources.com  
Facsimile: 303-357-7315

Authorized Representative: Ashlie Steele  
Address: 1615 Wynkoop St.  
Denver, CO 80202  
Telephone: 303-357-7323  
Email: astele@anteroresources.com  
Facsimile: 303-357-7315

**Oil and Gas Privacy Notice:**

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

RECEIVED  
Office of Oil and Gas

FEB 13 2015

04/10/2015

4708510206

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

**Surface Owners:**

**Owner:** Nancy Louise Antill ✓  
**Address:** 114 Melinda Dr.  
Wintersville, OH 43953

**Owner:** Mary Frances Harms ✓  
**Address:** 4368 Steuben Woods Dr.  
Steubenville, OH 43953

**Owner:** Kathleen R. Hooven ✓  
**Address:** 4 Amador  
Newport Beach, CA 92657

**Owner:** Karah L. Loftin ✓  
**Address:** 226 Surrey Court  
O Fallon, MO 63366

**Owner:** Kelcie J. Loftin ✓  
**Address:** 226 Surrey Court  
O Fallon, MO 63366

**Owner:** Daniel J. O'Neill ✓  
**Address:** 30640 Rapids Hollow.  
Gravois Mills, MO 65037

**Owner:** Sean T. O'Neill ✓  
**Address:** 30640 Rapids Hollow.  
Gravois Mills, MO 65037

**Owner:** Timothy R. O'Neill ✓  
**Address:** P. O. Box 5063  
Fort Myers Beach, FL 33932

**Owner:** Romarlo, LLC ✓  
**Address:** 757 SE 17<sup>th</sup> Street  
Fort Lauderdale, FL 33316

**Owner:** Sharon S. O'Neill ✓  
**Address:** 696 San Ramon Valley Blvd, #510  
Danville, CA 94526

**Owner:** O'Neill Family Trust c/o Betty O'Neill ✓  
Newsom, Trustee & Daniel O'Neill, Trustee  
**Address:** 30640 Rapids Hollow ✓  
Gravois Mills, MO 65037

RECEIVED  
Office of Oil and Gas

FEB 13 2015

WV Department of  
Environmental Protection

04/10/2015

**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:** 02/11/2015      **Date Permit Application Filed:** 02/11/2015

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

- CERTIFIED MAIL                                       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: PLEASE SEE ATTACHMENT                                      Name: \_\_\_\_\_  
 Address: (O'Neill Family Trust, et al)                                      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>506218m</u>
County: <u>Ritchie</u>		Northing: <u>4337817m</u>
District: <u>Union</u>	Public Road Access: <u>CR 9</u>	
Quadrangle: <u>Pullman 7.5'</u>	Generally used farm name: <u>O'Neill Family Trust, et al</u>	
Watershed: <u>South Fork Hughes River</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>asteefe@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 and Gas

FEB 13 2015

WV Department of  
Environmental Protection

04/10/2015

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

4708510206

**Surface Owners:**

**Owner:** Nancy Louise Antill  
**Address:** 114 Melinda Dr. ✓  
Wintersville, OH 43953

**Owner:** Mary Frances Harms  
**Address:** 4368 Steuben Woods Dr. ✓  
Steubenville, OH 43953

**Owner:** Kathleen R. Hooven ✓  
**Address:** 4 Amador  
Newport Beach, CA 92657

**Owner:** Karah L. Loftin ✓  
**Address:** 226 Surrey Court  
O Fallon, MO 63366

**Owner:** Kelcie J. Loftin ✓  
**Address:** 226 Surrey Court  
O Fallon, MO 63366

**Owner:** Daniel J. O'Neill ✓  
**Address:** 30640 Rapids Hollow.  
Gravois Mills, MO 65037

**Owner:** Sean T. O'Neill ✓  
**Address:** 30640 Rapids Hollow.  
Gravois Mills, MO 65037

**Owner:** Timothy R. O'Neill ✓  
**Address:** P. O. Box 5063  
Fort Myers Beach, FL 33932

**Owner:** Romarlo, LLC ✓  
**Address:** 757 SE 17<sup>th</sup> Street  
Suite 1085  
Fort Lauderdale, FL 33316

**Owner:** Sharon S. O'Neill ✓  
**Address:** 696 San Ramon Valley Blvd, #510  
Danville, CA 94526

**Owner:** O'Neill Family Trust c/o Betty O'Neill ✓  
Newsom, Trustee & Daniel O'Neill  
**Address:** 30640 Rapids Hollow  
Gravois Mills, MO 65037

RECEIVED  
Office of Oil and Gas

FEB 13 2015

WV Department of  
Environmental Protection

04/10/2015

4708510206



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

December 12, 2014

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 Lockhart Heirs West Pad, Ritchie County  
Left Fork Unit 4H Well site

Dear Mr. Martin,

This well site will be accessed from a DOH permit #03-2013-0010 which has been issued to Antero Resources Corporation for access to the State Road for a well site located off of Ritchie County Route 9 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,

A handwritten signature in blue ink that reads "Gary K. Clayton".

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

Cc: Megan Darling  
Antero Resources Corporation  
CH, OM, D-3  
File

RECEIVED  
Office of Oil and Gas

FEB 13 2015

WV Department of  
Environmental Protection 04/10/2015

4708510206

**List of Anticipated Additives Used for Fracturing or  
Stimulating Well**

<b>Additives</b>	<b>Chemical Abstract Service Number (CAS #)</b>
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

RECEIVED  
Office of Oil and Gas

FEB 13 2015

WV Department of  
Environmental Protection

04/10/2015

## Antero Resources Appalachian Corporation Site Construction Plan for Lockhart Heirs West Pad

*Antero Resources Appalachian Corporation (Antero) is submitting the following Site Construction Plan in compliance with §35-8-5.5. This plan is submitted in conjunction with the Lockhart Heirs West Site Design, Construction Plan, & Erosion and Sediment Control Plans prepared in accordance with the West Virginia Code of State Rules, Division of Environmental Protection and Office of Oil and Gas, and certified by Allegheny Surveys, Inc., a West Virginia registered professional engineer.*

---

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

### **Antero Response**

The nature and purpose of the subject project is to perforate, fracture, and complete one or more horizontal shallow wells. Procedures to achieve site stability include seeding and mulching of earth disturbed areas and implementation of erosion and sediment best management practices (BMPs). Details of seeding and mulching rates as well as procedures for installation and maintenance of erosion and sediment BMPs are outlined on page 3 of "Lockhart Heirs West Site Design, Construction Plan, & Erosion and Sediment Control Plans" (Site Design) prepared and certified by Allegheny Surveys, Inc. of West Virginia.

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

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

### **Antero Response**

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

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

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

### **Antero Response**

The limit of disturbance for the John Campbell South Pad can be found on "Site Plans" on pages 6-8 of the Site Design.

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

### **Antero Response**

RECEIVED  
Office of Oil and Gas

FEB 13 2015

04/10/2015

WV Department of  
Environmental Protection

Please refer to the "Existing Conditions" maps on page 4 of the Site Design for the current topographic conditions for the constructed pad on a contour interval that affords sufficient detail to illustrate site terrain conditions.

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

**Antero Response**

Please refer to the "Site Plans" in pages 6-8 as well as the "Drill Pad Profile & Cross Sections" on page 9 of the Site Design for proposed cut and fill areas with grading contours.

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

**Antero Response**

Please refer to "Site Plans" of the Site Design on pages 6-8 for the map identifying any structures, roads, water bodies, and other critical areas within the area of interest that would be most likely affected by construction.

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

**Antero Response**

Please refer to the "Drill Pad Profile & Cross Sections" and "Access Road Cross Sections" on pages 9-11 for a cross-section of the location. The cut and fill volumes can be found in "Schedule of Quantities" on page 2.

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

**Antero Response**

All other engineering designs and drawings necessary to construct this project are included in the Site Design on page 6-8.

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

**Antero Response**

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

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

**Antero Response**

RECEIVED  
Office of Oil and Gas

FEB 13 2015

WV Department of  
Environmental Protection

04/10/2015



The Site Design outlines measures to maintain compliance with Section 201 of the WVDOH Specifications which outlines clearing and grubbing measures. Please refer to Construction Specifications on page 3 of the Site Design.

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

**Antero Response**

The Site Design outlines procedures for stripping and stocking topsoil. Please refer to Construction Specifications on page 3 of the Site Design. In addition, soil for stockpiling and use as fill shall be further compliant with measures outlined in Section 5.5.c.2. of §35-8-5.5.

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

**Antero Response**

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

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

**Antero Response**

The Site Design outlines procedures for stripping and stocking topsoil. Please refer to Construction Specifications on page 3 of the Site Design. In addition, soil shall be further defined to the measures outlined in Section 5.5.c.4 of §35-8-5.5.

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

**Antero Response**

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

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

**Antero Response**

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

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

**Antero Response**

Please refer to the Construction Specifications on page 3 of the Site Design. Fill shall be placed in horizontal lifts of maximum loose depth of 12 inches. Compaction will be performed with appropriate

RECEIVED  
Office of Oil and Gas

FEB 13 2015

04/10/2015

WV Department of  
Environmental Protection

with a minimum of five ton static drum weight vibratory roller or five ton static drum weight sheeps footed compactor as appropriate for the type of soil material at the site or other compactor approved by the Engineer.

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

**Antero Response**

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

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

**Antero Response**

Compaction compliance measures are outlined in the Construction Specifications on page 4. Compaction is required with a compactor with a minimum of five ton static drum weight vibratory roller or five ton static drum weight sheeps footed compactor as appropriate for the type of soil material at the site or other compactor approved by the Engineer.

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

**Antero Response**

Construction, Erosion and Sediment Notes on page 3 of the Site Design identifies the surface diversions used to prevent surface water and subsurface water from flowing on to the well pad and coming into contact with the stormwater associated with the well pad. Additional Erosion & Sediment BMPs will be used to prevent sediment discharges from the project.

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

**Antero Response**

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

RECEIVED  
Office of Oil and Gas

FEB 13 2015

WV Department of  
Environmental Protection

04/10/2015

## Antero Resources Appalachian Corporation Erosion and Sediment Control Plan for Lockhart Heirs West Pad

*Antero Resources Appalachian Corporation (Antero) is submitting the following narrative and set of drawings in compliance with §35-8-5.4. This plan is submitted in conjunction with the Lockhart Heirs West Pad Site Design, Construction Plan, & Erosion & Sediment Control Plan prepared in accordance with the West Virginia Code of State Rules, Division of Environmental Protection and Office of Oil and Gas, and certified by Allegheny Surveys, Inc., a West Virginia registered professional engineer.*

---

**Requirement §5.4.b.1.** *A general sequence of events that describe in relative terms how and when each construction phase (i.e. clearing and grubbing, mass grading, stabilization) will occur and when each erosion and sediment control best management practice ("BMP") will be installed;*

**Antero Response:**

The following includes a general sequence of events that describe in relative terms how and when each construction phase is anticipated to occur and erosion and sediment control BMPs to be installed. Please refer to the Lockhart Heirs West Site Design, Construction Plan, and Erosion & Sediment Control Plan (Site Design) prepared and certified by Allegheny Surveys, Inc. for specific construction measures. Compliance with the measures outlined in the Site Construction Plan (§35-8-5.4) submitted in conjunction with this plan will also be maintained.

- 1) A pre-construction conference will be held on site with contractor to review the construction drawing and provide any requested guidance.
- 2) Construct the construction entrance.
- 3) Construct all proposed sediment control devices as soon as clearing and grubbing operations allow. Diversions and sediment basins shall be seeded and mulched immediately.
- 4) Clear and grub, remove topsoil and place at an area determined in the field where erosion will not take place. Topsoil stockpile to be seed and mulched. Silt fence shall be constructed around topsoil stockpiles.
- 5) Grading operations as required. Cut slopes and fill slopes shall be top soiled if needed. Ditch lines shall be cleaned. All ditches will have at least grass lining protection or greater based on ditch slope with the following determination; 0 to 3% - grass lined, 3 to 9% - jute matting, and 9% or greater –TRM.
- 6) Culvert inlet and outlet protection shall be constructed immediately upon placement of inlets and culverts. Installation of matting and/or rip rap to occur once ditches are constructed.
- 7) When final grade is achieved, topsoil to be placed on all disturbed areas not lined. Hydro-seed all disturbed areas as required. A soil sample should be taken and tested to determine recommended tons per acre. Fertilize at a rate of 500 lbs. of 10-20-10 per acre. Seed with 45 lbs. per acre of tall fescue and 20 lbs. per acre of perennial rye grass.
- 8) Lime, fertilizer, and seed will be applied by hand or using a hydro-seeder. Slope matting shall be installed in accordance with manufacturer's specifications.
- 9) Final seeding must occur within 7 days of final grading.
- 10) When site is stabilized, all erosion and sediment control measures can be removed and repair/stabilize those areas in accordance with state standards.

RECEIVED  
Office of Oil and Gas

FEB 13 2015

04/10/2015  
WV Department of  
Environmental Protection

- 11) Make modifications for permanent storm water management.
- 12) Final site inspection.

**Requirement §5.4.b.2.** *A description of the stabilization methods to be used, including the application rates for temporary and permanent seeding and mulching, and provide the timeframes for establishing stabilization*

**Antero Response:**

Stabilization methods used include seeding and mulching of disturbed areas as well as the implementation of erosion and sediment control BMPs. Please refer to Construction, Erosion and Sediment Notes on page 3 for detailed descriptions of the different stabilization methods to be used. Seeding and mulching is to be in accordance with the WVDOT Standard Specifications unless specified otherwise in the plans or unless specified otherwise by the construction engineer or Antero representative. Please refer to number 11 under Erosion Control Notes on page 3 of the Site Design for more specific information regarding application, liming, and mulching rates.

Erosion and sediment BMPs will be constructed, stabilized, and functional before site disturbance begins within the tributary areas of those BMPs. In a timely manner after earth disturbance activities cease, Antero shall stabilize any areas disturbed by the activities. During non-germination periods, mulch must be applied at the specified rates. Disturbed areas which are not at finish grade and which will be re-disturbed within 1 year will be stabilized in accordance with the temporary vegetative stabilization and specifications. Disturbed areas which are finished grade or which will not be re-disturbed within 1 year will be stabilized in accordance with the permanent vegetative stabilization specification. Please refer to "Construction, Erosion and Sediment Notes" on page 3 for more information regarding timeframes for establishing stabilization and erosion and sediment BMPs.

The site shall be considered to have achieved full stabilization when it has a minimum uniform 70% perennial vegetative cover or other permanent non-vegetative cover with a density sufficient to resist accelerated surface erosion and subsurface characteristics to resist sliding and other movements. Until the site achieves final stabilization, Antero will assure that the best management practices (BMPs) are implemented, inspected, operated, and maintained. As such, Antero will maintain written inspection logs. All maintenance work, including cleaning, repair, replacement, regarding, and re-stabilization shall be performed immediately upon discovery of deficiency. After final stabilization has been achieved, temporary erosion and sediment BMPs controls will be removed. Areas disturbed during removal of the BMPs will be stabilized immediately.

**Requirement §5.4.b.3.** *Details of specifications for the erosion and sediment control BMPs employed on the project.*

**Antero Response:**

Please refer to the "Construction, Erosion and Sediment Notes" on page 3 in the Site Design for specifications including instructions for installation, inspection, and maintenance for erosion and sediment control BMPs employed at this site.

**Requirement §5.4.c.1.** *A vicinity map locating the site in relation to the surrounding area and roads;*

**Antero Response:**

RECEIVED  
Office of Oil and Gas

FEB 13 2015

WV Department of Environmental Protection 04/10/2015

A "Vicinity Map" locating the site in relation to the surrounding area and roads is included on page 1 the Site Design .

**Requirement §5.4.c.2.** *A plan view site map at a scale of one inch equal to one hundred feet (1"=100') or greater, showing appropriate detail of all site features, including the identification of site access that provides for a stabilized construction entrance and exit to reduce tracking of sediment onto public or private roads; and*

**Antero Response:**

"Site Plan" maps are included on pages 6-8 of the Site Design. Specific design and layout and inspection and maintenance notes for a stabilized construction entrance are included in the "Erosion and Sediment Control" verbiage on page 3.

**Requirement §5.4.c.3.** *The location of all proposed erosion and sediment control BMPs*

**Antero Response:**

"Site Plan" maps included on pages 6-8 of the Site Design locate all proposed erosion and sediment control BMPs.

RECEIVED  
Office of Oil and Gas

FEB 13 2015

WV Department of  
Environmental Protection

04/10/2015



# LOCKHART HEIRS WEST WELL AND WATER CONTAINMENT PAD SITE DESIGN & CONSTRUCTION PLANS EROSION & SEDIMENT CONTROL PLANS

ANTERO RESOURCES CORPORATION



APPROVED WVDEP OOG 3/30/2015

API# 8510204  
API# 8510205  
API# 8510206

### PROJECT CONTACTS

**PROJECT OWNER**  
ANTERO RESOURCES  
1815 WYNORP STREET  
DENVER, CO 80222

**CONTACT ANTHONY SMITH**  
304.893.2450 OFFICE  
304.873.8198 CELL

**CONTACT JOHN KAWCAK**  
817.368.1533

**CONTACT ELMALGONER**  
ENVIRONMENTAL SUPERVISOR  
304.622.3842 EXT 311  
OFFICE

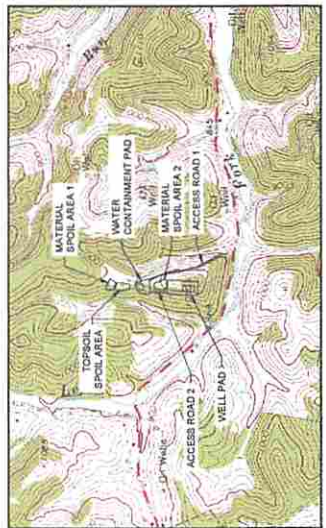
**CONTACT ARON KUNKLER**  
CONSTRUCTION SUPERVISOR  
465.227.8344

**LOCATION SURVEYOR**  
WHITE MOUNTAIN CONSULTING LLC  
441 CALICO ROAD, SUITE 110  
CHARLESTON, WV 25312  
304.520.9462

**ENGINEER OF RECORD**  
KLEINFELDER EAST, INC.  
CONTACT W. P. KOPAS, PE  
3500 GATEWAY CENTRE BLDG, SUITE 200  
DENVER, CO 80202  
916.755.1414 FAX

**ENVIRONMENTAL/ DELINEATION BOUNDARY**  
ALLSTAR ECOLOGY, LLC  
CONTACT ERIC SMITH, MS  
1500 W. 15TH STREET, SUITE 200  
FARMINGTON, WV 25834  
304.612.7591 CELL

**TOPO SURVEYOR**  
BLUE MOUNTAIN AERIAL MAPPING  
CONTACT CRAIG FRYMAN  
1102 BURTON, WV 25802  
304.812.4800 CELL



NORTH MERIDIAN REFERENCED TO NAD83 WEST VIRGINIA STATE PLANE NORTH ZONE

AFFECTED TAX PARCELS: SEE SHEET 2

PULLMAN 75 QUAD  
LITTLE KANAWHA WATERSHED

SITE LOCATIONS			NAD 83 (WV NORTH)		UTM ZONE 17 (METERS)	
DESCRIPTION	LATITUDE	LONGITUDE	NORTHING	EASTING	NORTHING	EASTING
CENTER OF WELL PAD	38.186951	-82.277987	4327848.5371	505710.0003	4327848.5371	505710.0003
CENTER OF WATER CONTAINMENT PAD	38.186957	-82.277998	4328252.2471	505720.6285	4328252.2471	505720.6285
ACCESS ROAD ENTRANCE	38.187785	-82.282981	4327915.9834	505591.6130	4327915.9834	505591.6130

FLOODPLAIN CONDITIONS		ACCESS ROAD LENGTH (FEET)	
DO SITE CONSTRUCTION ACTIVITIES TAKE PLACE IN FLOODPLAIN	NO	DESCRIPTION	FEET
PERMIT NEEDED FROM COUNTY FLOODPLAIN COORDINATOR	N/A	ACCESS ROAD 1	1,422
HEC-RAS STUDY COMPLETED	N/A	ACCESS ROAD 2	295
FLOODPLAIN SHOWN ON DRAWING	N/A	ACCESS ROAD 3	295
FIRM MAP NUMBER(S) FOR SITE	6486502295	TOTAL	1,717



**DESIGN CERTIFICATION**  
THE DRAWINGS, CONSTRUCTION NOTES, AND REFERENCE DIAGRAMS ATTACHED HERETO HAVE BEEN PREPARED IN ACCORDANCE WITH THE WEST VIRGINIA CODE OF STATE RULES, CHAPTER 100, PART 10, AND THE WEST VIRGINIA CODE OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS § 68-2-4.

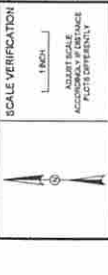
**MM-109 PERMIT**  
ANTERO RESOURCES WILL OBTAIN AN ENCROACHMENT PERMIT FROM THE WEST VIRGINIA DEPARTMENT OF HIGHWAYS, PRIOR TO THE COMMENCEMENT OF CONSTRUCTION ACTIVITIES.

PLAN REPRODUCTION WARNING

"THE PLANS HAVE BEEN CREATED ON A 10:1 SCALE. ANY REPRODUCTION OF THESE PLANS MUST BE ON A 10:1 SCALE. ANY REPRODUCTION ON A DIFFERENT SCALE MAY BE INACCURATE AND NOT BE CONSIDERED ACCURATE FOR CONSTRUCTION PURPOSES."

"DRAWINGS" REPRODUCTION MAY BE FOR EDUCATIONAL AND/OR RESEARCH PURPOSES ONLY. ANY OTHER REPRODUCTION IS STRICTLY PROHIBITED."

PAGE NO.	DESCRIPTION
1	COVER PAGE & LOCATION MAP
2	SCHEDULE OF QUANTITIES
3	NOTES
4	EASTING CONDITIONS
5	OVERALL PLAN
6	GRAZING REWORK PLAN
7-8	SITE PLAN
9	WELL PAD GRADING PLAN
10	WATER CONTAINMENT PAD GRADING PLAN
11	WELL PAD CROSS SECTIONS AND PROFILE
12	WATER CONTAINMENT PAD CROSS SECTIONS AND PROFILE
13	ACCESS ROAD 1 CROSS SECTIONS AND PROFILE
14	ACCESS ROAD 2 CROSS SECTIONS AND PROFILE
15-20	DETAILS
21-22	RECLAMATION PLAN



**SCALE VERIFICATION**  
AS-BUILT SCALE: AS SHOWN  
AS-CONSTRUCTED SCALE: AS SHOWN  
AS-CONSTRUCTED FACTS DIFFERENTIALLY

**COVER PAGE & LOCATION MAP**  
LOCKHART HEIRS WEST WELL & W.C. PAD  
PULLMAN DISTRICT, RITCHIE COUNTY  
WEST VIRGINIA

**CONSTRUCTION**

PROJECT NO.	2735006
ISSUE DATE	03/26/2015
CURRENT REVISION	0
DESIGNED BY	CHT
DRAWN BY	CHT
CHECKED BY	JAC
APPROVED BY	JAC

1

SHEET 1 OF 22

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

04/10/2015



REV	DESCRIPTION	DATE

**ISSUED FOR CONSTRUCTION**

SCALE VERIFICATION

1" = 20' HORIZONTAL  
1" = 4' VERTICAL

ADJUST SCALE TO ACCOMMODATE PLOTS DIFFERENTLY

**SITE PLAN**

LOCKHART HERB WEST WELL & W.C. PAD  
RITCHIE COUNTY  
WEST VIRGINIA

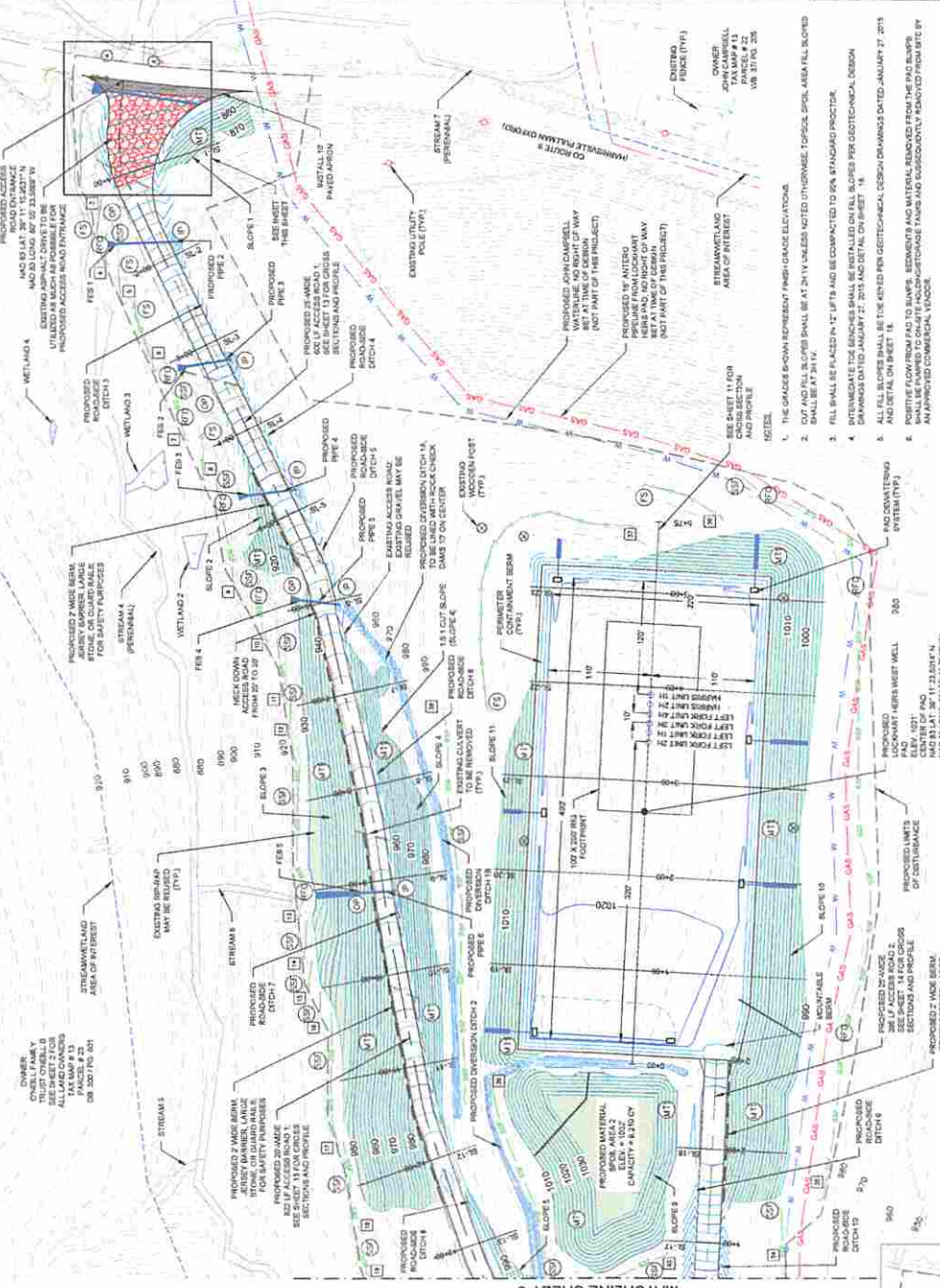


**CONSTRUCTION**

PROJECT NO.	2015-001
DATE	03/30/2015
CURRENT REVISION	0
DESIGNED BY	JAC
DRAWN BY	JAC
CHECKED BY	JAC
APPROVED BY	JAC

7

1 of 22



1. THE GRAZERS DOWN REPRESENT FRESH GRADE ELEVATIONS.
2. ALL FILL SHALL BE PLACED IN 1' LIFTS AND BE COMPACTED TO 98% STANDARD PROCTOR.
3. ALL FILL SHALL BE PLACED IN 1' LIFTS AND BE COMPACTED TO 98% STANDARD PROCTOR.
4. SEE DETAIL 2, SHEET 16 FOR RAMP OUTLET PROTECTION BERM AND DESIGN.
5. ALL FILL SLOPES SHALL BE AS NOTED PER GEOTECHNICAL DESIGN DRAWINGS DATED JANUARY 27, 2015 AND DETAIL ON SHEET 16.
6. POSITIVE FLOW FROM PAD TO BERM, SEDIMENTS AND MATERIAL REMOVED FROM THE PAD BERM SHALL BE FLOWED TO GRATE HOLD-UP STORAGE TANKS AND SUBSEQUENTLY REMOVED FROM SITE BY AN APPROPRIATE COMMERCIAL VEHICLE.
7. TOP OF SPILL AREA FILL SLOPES TO BE GRADED AT A MINIMUM OF 3% FROM CENTER OUT TO PROMOTE POSITIVE FLOW.
8. ALL EXISTING UTILITY CONDUITS ON THE SITE HAVE BEEN DESIGNED TO ACCOMMODATE THE 15-1500 1/2" X 1/2" YEAR FLOW RATE. ANY UTILITY OF 4" OR SMALLER SHALL BE 15' FROM CENTER AND 15' FROM EDGE OF ROADWAY. ALL ROADWAY DITCH CALCULATIONS FOR THE 1500 PRESCRIPTION FREQUENCY DATA WERE FOR RITCHIE CO. W.V.
9. DETAIL 2, SHEET 16 FOR RAMP OUTLET PROTECTION BERM AND DESIGN.
10. CONSTRUCTION TO INITIAL ROCK CHECK DAMS WITH INCREASED CHECK CHANNELS AND DIVERSION DITCHES, SEE DETAIL 4 ON SHEET 17 FOR PACING REQUIREMENTS. ROCK CHECK DAMS WILL BE PERMANENT CHECK DAMS AFTER CONSTRUCTION IS COMPLETE.
11. ALL FILLER SOIL TO BE 1% UNLESS OTHERWISE NOTED.
12. ALL FILLER SHALL BE PLACED IN 1' LIFTS UNLESS OTHERWISE NOTED.
13. ALL FILLER SHALL BE PLACED IN 1' LIFTS UNLESS OTHERWISE NOTED.
14. INSTALL ROCK FILLER OUTLETS ALONG GERMONT BARRIERS AS SHOWN AND AT LOW POINTS AS IDENTIFIED IN THE FIELD.

**LOCKHART HERB WEST FLOW DRAINAGE COMPUTATIONS**

PIPE	STATION	Q TO GULF FLOW (CFS)	SLOPE (FT/FT)	SIZE (IN)	LENGTH (FT)	UPPER INVERT (FT)	LOWER INVERT (FT)	PIPE MATERIAL
PIPE 1	4+11.0+13	16.5	0.0779	18" X 18"	10.00	82.75	84.40	TRENCH DRAIN WITH GRATE
PIPE 2	4+11.0+18	1.68	0.0187	18"	65.00	81.00	82.00	HDPE
PIPE 3	4+11.0+25	1.27	0.0222	18"	45.00	84.00	85.00	HDPE
PIPE 4	4+11.0+32	1.95	0.0469	18"	50.00	81.00	81.50	HDPE
PIPE 5	4+11.0+39	4.73	0.0500	18"	40.00	84.00	84.50	HDPE
PIPE 6	4+11.0+42	8.35	0.0374	18"	70.00	82.50	83.00	HDPE
PIPE 7	4+11.0+49	5.13	0.0671	18"	60.00	80.50	81.00	"DOUBLE WALL" CONDUIT PIPE

**LEGEND**

1:500	EXISTING CONTOUR
1:500	PROPOSED CONTOUR
1:500	EXISTING ROAD
1:500	PROPOSED ROAD
1:500	EXISTING UTILITY
1:500	PROPOSED UTILITY
1:500	EXISTING STRUCTURE
1:500	PROPOSED STRUCTURE
1:500	EXISTING FENCE
1:500	PROPOSED FENCE
1:500	EXISTING EROSION CONTROL
1:500	PROPOSED EROSION CONTROL
1:500	EXISTING VEGETATION
1:500	PROPOSED VEGETATION
1:500	EXISTING WATER BERM
1:500	PROPOSED WATER BERM
1:500	EXISTING ROCK CHECK DAM
1:500	PROPOSED ROCK CHECK DAM
1:500	EXISTING RAMP
1:500	PROPOSED RAMP
1:500	EXISTING SPILL AREA
1:500	PROPOSED SPILL AREA
1:500	EXISTING FILL
1:500	PROPOSED FILL
1:500	EXISTING EXCAVATION
1:500	PROPOSED EXCAVATION
1:500	EXISTING EROSION CONTROL
1:500	PROPOSED EROSION CONTROL

**STORM DRAINAGE LEGEND**

1:500	EXISTING DRAINAGE
1:500	PROPOSED DRAINAGE
1:500	EXISTING FLOW
1:500	PROPOSED FLOW
1:500	EXISTING STRUCTURE
1:500	PROPOSED STRUCTURE
1:500	EXISTING FENCE
1:500	PROPOSED FENCE
1:500	EXISTING EROSION CONTROL
1:500	PROPOSED EROSION CONTROL

**APPROVED**  
**WVDEP OOG**  
3/30/2015



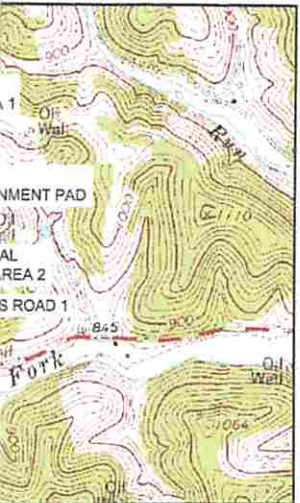
# WEST WELL AND WATER CONTAINMENT PAD CONSTRUCTION PLAN, ACCESS ROAD CROSS CONTROL PLANS FOR LOCKHART HEIRS CORPORATION



230 EXECUTIVE DRIVE, SUITE 122  
CRANBERRY TOWNSHIP, PA 16066  
PHONE: 724-772-7072  
WWW.KLEINFELDER.COM



Signed By: JBC # 20354



WELL HEAD LAYOUT				
WELL NAME	NAD 83 (WV NORTH ZONE)			
	NORTHING	EASTING	LATITUDE	LONGITUDE
HARRIS UNIT 1H	254359.8028	1563765.7056	39.189522	-80.928004
HARRIS UNIT 2H	254369.7898	1563766.2167	39.189549	-80.928003
LEFT FORK UNIT 4H	254379.7767	1563766.7277	39.189577	-80.928002
LEFT FORK UNIT 3H	254389.7636	1563767.2388	39.189604	-80.928001
LEFT FORK UNIT 1H	254399.7506	1563767.7498	39.189632	-80.928000
LEFT FORK UNIT 2H	254409.7375	1563768.2609	39.189659	-80.927998

WELL HEAD LAYOUT				
WELL NAME	NAD 27 (WV NORTH ZONE)		UTM ZONE 17 (METERS)	
	NORTHING	EASTING	NORTHING	EASTING
HARRIS UNIT 1H	254325.5506	1595206.6145	4337810.8428	506217.5530
HARRIS UNIT 2H	254335.5375	1595207.1256	4337813.8879	506217.6579
LEFT FORK UNIT 4H	254345.5245	1595207.6368	4337816.9330	506217.7628
LEFT FORK UNIT 3H	254355.5114	1595208.1479	4337819.9780	506217.8677
LEFT FORK UNIT 1H	254365.4984	1595208.6590	4337823.0231	506217.9726
LEFT FORK UNIT 2H	254375.4854	1595209.1701	4337826.0682	506218.0775

REVISIONS				
REV	DESCRIPTION	DSN	CHK	DATE

PULLMAN 7.5 QUAD  
LITTLE KANAWHA WATERSHED



SHEET INDEX	
PAGE NO.	DESCRIPTION
1	COVER PAGE & LOCATION MAP
2	SCHEDULE OF QUANTITIES
3	NOTES
4	EXISTING CONDITIONS
5	OVERALL PLAN
6	GRADING REWORK PLAN
7 - 8	SITE PLAN
9	WELL PAD GRADING PLAN
10	WATER CONTAINMENT PAD GRADING PLAN
11	WELL PAD CROSS SECTIONS AND PROFILE
12	WATER CONTAINMENT PAD CROSS SECTIONS AND PROFILE
13	ACCESS ROAD 1 CROSS SECTIONS AND PROFILE
14	ACCESS ROAD 2 CROSS SECTIONS AND PROFILE
15 - 20	DETAILS
21 - 22	RECLAMATION PLAN

**ISSUED FOR CONSTRUCTION**



SCALE VERIFICATION  
1 INCH  
ADJUST SCALE ACCORDINGLY IF DISTANCE PLOTS DIFFERENTLY

1000 500 0 1000  
SCALE: 1 INCH = 1000 FEET

ORIGINAL DRAWING SIZE IS 22 x 34

**COVER PAGE & LOCATION MAP**

LOCKHART HEIRS WEST WELL & W.C. PAD  
PULLMAN DISTRICT, RITCHIE COUNTY  
WEST VIRGINIA

Received  
Office of Oil & Gas  
FEB 27 2015



**CONSTRUCTION**

PROJECT NO.	20152806
ISSUE DATE	02-06-2015
CURRENT REVISION	0
DESIGNED BY	CHT
DRAWN BY	CHT
CHECKED BY	JBC
APPROVED BY	JMF

1

04/10/2015

- WELL LOCATION RESTRICTIONS**  
WELL PAD IS TO COMPLY WITH WELL LOCATION RESTRICTIONS OF WV CODE 22-6A-12. THE PADS COMPLY WITH THE FOLLOWING RESTRICTIONS:
- 250' FROM AN EXISTING WELL OR DEVELOPED SPRING USED FOR HUMAN OR DOMESTIC ANIMALS
  - 625' FROM AN OCCUPIED DWELLING OR BARN GREATER THAN 2500 SF USED FOR POULTRY OR DAIRY MEASURED FROM THE CENTER OF THE PAD
  - 100' FROM EDGE OF DISTURBANCE TO WETLANDS, PERENNIAL STREAMS, NATURAL OR ARTIFICIAL LAKE, POND OR RESERVOIR
  - 300' FROM EDGE OF DISTURBANCE TO NATURALLY REPRODUCING TROUT STREAMS
  - 1000' OF SURFACE OR GROUND WATER INTAKE TO A PUBLIC WATER SUPPLY

*David W. Cowan*  
2-25-15

**WARNING**  
SHEETS FOR  
PLOTTING ANY SET  
OR SHALL NOT BE  
POSES.  
ING AND/OR GRAY