



west virginia department of environmental protection

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

Harold D. Ward, Cabinet Secretary
www.dep.wv.gov

Thursday, December 16, 2021
WELL WORK PERMIT
Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET
DENVER, CO 80202

Re: Permit approval for TOROWEAP UNIT 1H
47-095-02765

This well work permit is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to any additional specific conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas Inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days of completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926- 0450.


James A. Martin
Chief

Operator's Well Number: TOROWEAP UNIT 1H
Farm Name: KENNETH TOMBLIN ET AL
U.S. WELL NUMBER: 47-095-02765
Horizontal 6A New Drill
Date Issued: 12/16/2021

Promoting a healthy environment.

12/17/2021

PERMIT CONDITIONS

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

CONDITIONS

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

API Number: _____

PERMIT CONDITIONS

11. The operator shall provide to the Office of Oil and Gas the dates of each of the following within 30 days of their occurrence: completion of construction of the well pad, commencement of drilling, cessation of drilling, completion of any other permitted well work, and completion of the well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov.

12/17/2021

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

1) Well Operator: Antero Resources Corporal 494507062 095-Tyler Ellsworth Porter Falls 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Toroweap Unit 1H Well Pad Name: Grand Pad

3) Farm Name/Surface Owner: Kenneth Tomblin et ux Public Road Access: Gorrells Run Road

4) Elevation, current ground: 1268' Elevation, proposed post-construction: ~1243'

5) Well Type (a) Gas Oil Underground Storage

Other

(b) If Gas Shallow Deep

Horizontal

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus Shale: 7400' TVD, Anticipated Thickness- 55 feet, Associated Pressure- 9300#

8) Proposed Total Vertical Depth: 7,400' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 19,500' MD

11) Proposed Horizontal Leg Length: 11,437'

12) Approximate Fresh Water Strata Depths: 25'

13) Method to Determine Fresh Water Depths: 47-095-02267

14) Approximate Saltwater Depths: 2305'

15) Approximate Coal Seam Depths: 431'

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: _____

18)

CASING AND TUBING PROGRAM

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	20"	New	H-40	94#	80	80	CTS, 218 Cu. Ft.
Fresh Water	13-3/8"	New	J-55	54.5#	300	300 /	CTS, 417 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	2500	2500 /	CTS, 1018 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	23#	19500	19500 /	4555 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#			
Liners							

Byron Harris 11-17-21

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	20"	24"	0.438"	1530	50	Class A	~1.18
Fresh Water	13-3/8"	17-1/2"	0.38"	2730	1000	Class A	~1.18
Coal	9-5/8"	12-1/4"	0.352"	3520	1500	Class A	~1.18
Intermediate							
Production	5-1/2"	8-3/4" & 8-1/2"	0.415"	12,630	9300	Lead-H/POZ & Tail - H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11,200			
Liners							

RECEIVED
Office of Oil and Gas

NOV 22 2021

PACKERS

WV Department of
Environmental Protection

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

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): Existing 41.0 acres

22) Area to be disturbed for well pad only, less access road (acres): Existing 13.72 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.

WW-9
(4/16)

API Number 47 - 085 - 02765
Operator's Well No. Torowasp Unit 1H

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Antero Resources Corporation OP Code 494507062

Watershed (HUC 10) Outlet Middle Island Creek Quadrangle Porter Falls 7.5'

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes No

Will a pit be used? Yes No

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

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

Proposed Disposal Method For Treated Pit Wastes:

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

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

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. Surface - Air/freshwater, immediate
Out/Slit Flow, Production - Water Based Mud or
Synthetic Based Mud

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

Additives to be used in drilling medium? Please See Attachment

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

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

-Landfill or offsite name/permit number? Meadowfill Landfill (Permit #SWF-1032-95), Northwestern Landfill (Permit # SWF-1025/WV0109410)

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

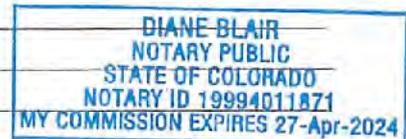
I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations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

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

Company Official Signature Gretchen Kohler

Company Official (Typed Name) Gretchen Kohler

Company Official Title Director, Environmental & Regulatory Manager



Subscribed and sworn before me this 10th day of November, 2021

Diane Blair

Notary Public

My commission expires 27 Apr 2024

RECEIVED
Office of Oil and Gas

NOV 12 2021

WV Department of
Environmental Protection

12/17/2021

Antero Resources Corporation

Proposed Revegetation Treatment: Acres Disturbed 44.91 acres Prevegetation pH _____

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

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

Fertilizer amount 500 lbs/acre

Mulch 2-3 Tons/acre

Access Road "A" (9.18 acres) + Access Road "B" (2.59 acres) + Staging Area (0.41) + Well Pad (13.44 acres) + Excess/Topsoil Material Stockpiles (26.03 acres) = 51.65 Acres

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Annual Ryegrass	40	Crownvetch	10-15
Field Bromegrass	40	Tall Fescue	30
See attached Table IV-3 for additional seed type (Margery Pad Design)		See attached Table IV-4A for additional seed type (Margery Pad Design)	
*or type of grass seed requested by surface owner		*or type of grass seed requested by surface owner	

Attach:

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Dejean Harrison

Comments: _____

RECEIVED
Office of Oil and Gas

NOV 22 2021

WV Department of
Environmental Protection

Title: Inspector

Date: 11-17-21

Field Reviewed? () Yes (X) No

Grand Pad

-  Toroweap Unit 1H
-  Toroweap Unit 2H
-  Toroweap Unit 3H

 Grand Unit 5H

-  Vishnu Unit 1H
-  Vishnu Unit 2H
-  Tapeats Unit 1H
-  Tapeats Unit 2H
-  Tapeats Unit 3H

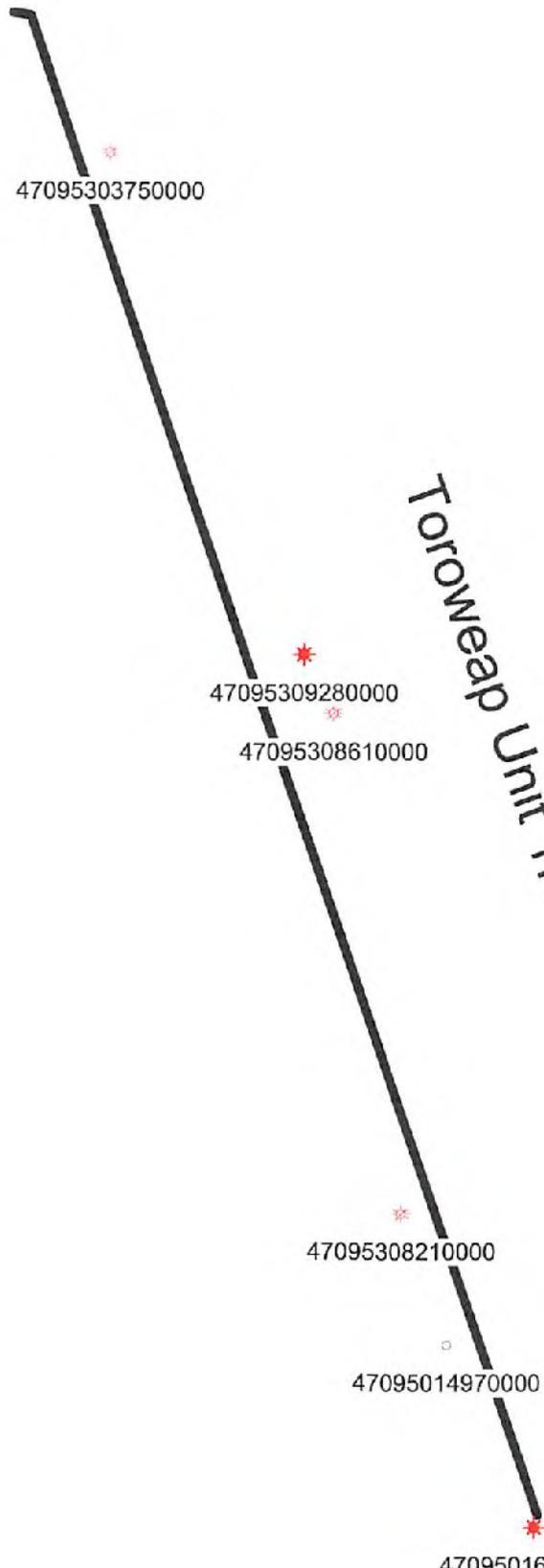
RECEIVED
Office of Oil and Gas

NOV 12 2021

WV Department of
Environmental Protection

Legend	
	Existing Well
	Permitted Well
	Proposed Well

Updated 8/28/20
12/17/2021
Not to Scale



Torowear Unit 1H



Antero Resources Corporation

Torowear Unit 1H - AOR



- WELL SYMBOLS
- Gas Well
- Plugged Gas Well

November 8, 2021

RECEIVED
Office of Oil and Gas

NOV 12 2021

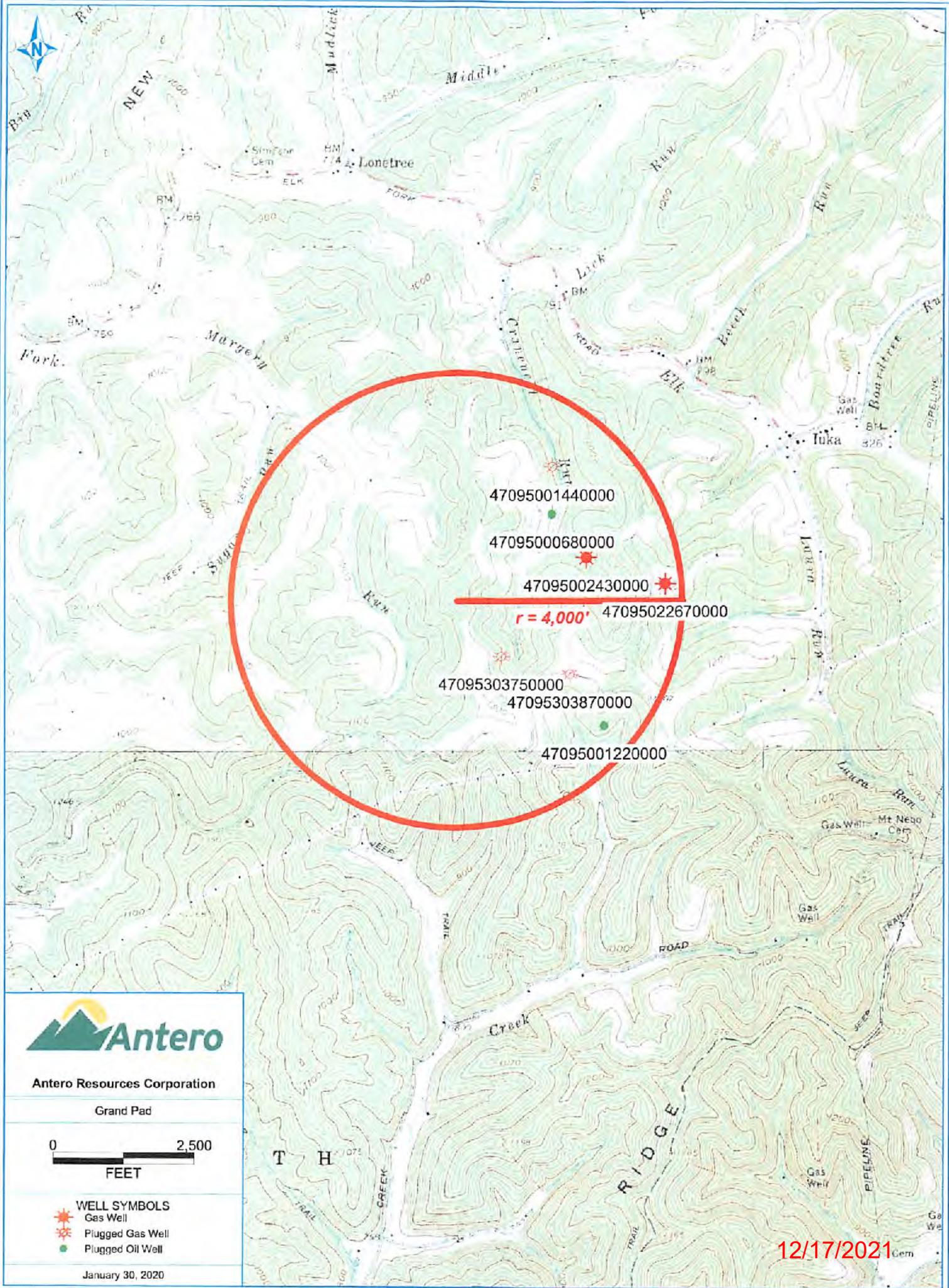
WV Department of
Environmental Protection

12/17/2021

Toroweap Unit 1H - AOR Table

UWI (APINum)	Well Name	Well Number	Operator	Historical Operator	TD	Perforated Interval (shallowest, deepest)	Perforated Formation(s)	Producible Formation(s) not perf'd
47095303750000	NANCY FERRELL HEIRS	1	EDGAR OIL	EDGAR OIL	1,840	Unknown	Keener	Alexander, Weir, Berea
47095309280000	D W BENNETT/E WELLS 1	2065	MANUFACT LIGHT &HEAT	MANUFACT LIGHT &HEAT	2,644	Unknown	Gordon	Alexander, Weir, Berea
47095308610000	A WEEKLEY 1	1311	MANUFACT LIGHT &HEAT	MANUFACT LIGHT &HEAT	2,057	Unknown	Big Injun, Gordon	Alexander, Weir, Berea
47095308210000	C W WEEKLEY	1	SOUTH PENN OIL	SOUTH PENN OIL	2,053	Unknown	Keener, Big Injun	Alexander, Weir, Berea
47095016150000	WM J WIKER & SPENCER	2	RITCHIE PET CORP	BEECHLICK OIL INC	2,900	Unknown	Gordon	Alexander, Weir, Berea
47095014970000	JAMES WEEKLEY HRS	2	RITCHIE PET CORP	BEECHLICK OIL INC	Unknown	Unknown	Big Injun	Alexander, Weir, Berea

RECEIVED
 Office of Oil and Gas
 NOV 12 2021
 WV Department of
 Environmental Protection



47095001440000

47095000680000

47095002430000

$r = 4,000'$ 47095022670000

47095303750000

47095303870000

47095001220000



Antero Resources Corporation

Grand Pad



- WELL SYMBOLS**
- Gas Well
 - Plugged Gas Well
 - Plugged Oil Well

January 30, 2020

12/17/2021

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

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



911 Address
6083 Gorrells Run Road
Middlebourne, WV 26149

Well Site Safety Plan

Antero Resources

Well Name: Toroweap Unit 1H-2H-3H

Pad Location: GRAND PAD

Tyler County/Ellsworth District

RECEIVED
Office of Oil and Gas

NOV 12 2022

GPS Coordinates:

Entrance - Lat 39°30'00.24"/Long -80°48'37.20" (NAD83)
Pad Center - Lat 39°30'26.91"/Long -80°48'38.43" (NAD83)

WV Department of
Environmental Protection

QOP
11/30/2021

Driving Directions:

From Middlebourne: head northeast on Main Street toward Court Street/Dodd Street for 0.2 miles - turn right onto park Avenue for 397 feet - turn left onto Gorrells Run Road for 0.4 miles - continue onto Gorrells Run Road for 2.8 miles - turn right to stay on Gorrells Run Road for 3.2 miles - lease road will be on your left.

Alternate Route:

From Centerville: Head south on Klondike Ridge toward WV-18 S for 0.2 miles - turn left onto WV-18 N for 2.0 miles - turn right onto Indian Creek Road for 1.0 mile - turn left onto Big Run Road for 4.8 miles - continue onto Left Hand Fork Walnut Run for 0.3 miles - turn left onto Gorrells Run/Kingsley Ridge for 3.7 miles - lease road will be on your right.

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

1

LATITUDE 39°32'30"

5,428'

LATITUDE 39°30'00" 1,552' TO BOTTOM HOLE

Antero Resources Corporation Well No. Toroweap 1H

NOTES:
 WELL 1H TOP HOLE INFORMATION:
 N: 369,695ft E: 1,630,134ft
 LAT: 39°30'27.44" LON: 80°48'39.25"
 BOTTOM HOLE INFORMATION:
 N: 358,715ft E: 1,633,852ft
 LAT: 39°28'39.46" LON: 80°47'49.60"
 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 1H TOP HOLE INFORMATION:
 N: 4,373,136m E: 516,271m
 BOTTOM HOLE INFORMATION:
 N: 4,369,810m E: 517,460m

Ellsworth District - Tyler County	
16-14	James Barnhart
16-15	Harvey Miller Et Al
16-28	Kenneth Tomblin Et Al
16-29	Michael Tomblin
16-30	Christopher Investments Inc.
16-31	Christopher Investments Inc.
16-33	J. A. Weekley Hrs.
16-34	J. A. Weekley Hrs.
16-35	Jay Wright
17-56	J. A. Weekley Hrs.
22-9	Steven Wright
22-10	Leslie Henderson
22-11	Angelin DeCaelle
22-13	Christopher Blake
22-14	Susan Dalsordo
22-14.1	Sheryl Hayes
22-27	C. W. Weekley Hrs.
22-28	WSD Properties LLC
23-02	Dale Parr
23-03	Jack Har
23-04	Jack Har
McElroy District - Tyler County	
2-01	Jack Har
2-02	Jack Har
2-15	Leo Wiker
2-28	Jay Bee Oil & Gas Inc.
2-29	Cecil Nichols

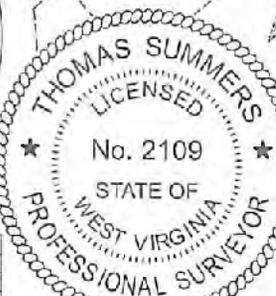
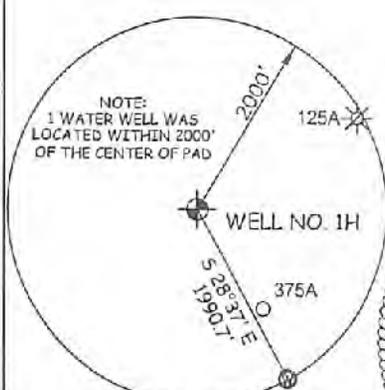
WV NORTH ZONE GRID NORTH

8,149' TO BOTTOM HOLE

12,401'

LONGITUDE 80°47'30"

LONGITUDE 80°47'30"



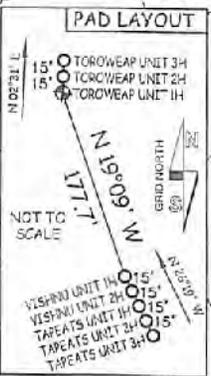
LINE	BEARING	DIST.	LINE	BEARING	DIST.
L1	N 79°23' W	1820.54'	L7	N 17°11' W	1289.39'
L2	N 72°38' W	1737.73'	L8	N 14°44' W	1409.38'
L3	N 69°39' W	1680.54'	L9	N 07°35' W	1774.82'
L4	N 45°05' W	1540.95'	L10	N 03°37' W	1761.12'
L5	N 36°53' W	1627.55'	L11	N 17°55' E	1113.36'
L6	N 30°40' W	1612.05'	L12	N 48°24' E	1322.09'

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
 220 MASONIC AVE. PENNSBORO
 WEST VIRGINIA 26415



JOB # 21-011WA
 DRAWING # TOROWEAP1H
 SCALE 1" = 2000'
 MINIMUM DEGREE OF ACCURACY SUBMETER
 PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

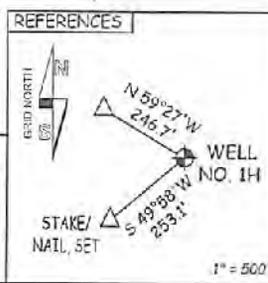
LEGEND
 - - - Surface Owner Boundary Lines +/-
 - - - Adjoining Surface Tracts +/-
 ⊕ Found monument, as noted

Thomas Summers
 THOMAS SUMMERS P.S. 2109

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS

DATE 11/02/21
 OPERATOR'S WELL# TOROWEAP UNIT #1H

(NAD) 27 (UTM) ZONE 17 COORDS:
 WELL 1H TOP HOLE INFORMATION:
 N: 14,346,816ft E: 1,693,753ft
 POINT OF ENTRY INFORMATION:
 N: 14,346,694ft E: 1,693,874ft
 BOTTOM HOLE INFORMATION:
 N: 14,335,904ft E: 1,697,653ft



WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL 47 - 095 - 02765 H6A
 (IF "GAS") PRODUCTION STORAGE DEEP SHALLOW STATE COUNTY PERMIT
 LOCATION: ELEVATION AS BUILT - 1,243.5' WATERSHED OUTLET MIDDLE ISLAND CREEK
 QUADRANGLE PORTER FALLS 7.5' DISTRICT ELLSWORTH COUNTY TYLER
 SURFACE OWNER KENNETH TOMBLIN ET AL ACREAGE 290.32 ACRES +/-
 OIL & GAS ROYALTY OWNER S. A. SMITH AND C. B. MORRIS HEIRS TRUST; BETTY MOREHEAD ET VIR. LEASE ACREAGE 290.32 AC. ±; 68.88 AC. ±;
 JAY A. WRIGHT ET UX; MORRIS MOUNTAINEER OIL & GAS LLC; CAROL J. KNAPP 40.81 AC. ±; 45.98 AC. ±; 77.5 AC. ±; 121.77/2021
 BERNICE BAKER; JAMES A. WEEKLEY ET AL; JANIE DENOON TRUST; MICHAEL SHERWOOD 45 AC. ±; 58.5 AC. ±; 20 AC. ±; 32.5 AC. ±;

PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) _____
 TARGET FORMATION MARCELLUS PLUG & ABANDON CLEAN OUT & REPLUG
 WELL OPERATOR ANTERO RESOURCES CORP. ESTIMATED DEPTH 7,400' TVD 19,500' MD
 ADDRESS 1615 WYNKOOP ST. ADDRESS 5400 D BIG TYLER ROAD
 FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

COUNTY NAME PERMIT

LATITUDE 39°32'30"

5,428'

LATITUDE 39°30'00" 1,552' TO BOTTOM HOLE

Antero Resources Corporation Well No. Toroweap 1H

NOTES: WELL 1H TOP HOLE INFORMATION: N: 369,695ft E: 1,630,134ft LAT: 39°30'27.44" LON: 80°48'39.25" BOTTOM HOLE INFORMATION: N: 358,715ft E: 1,633,852ft LAT: 39°28'39.46" LON: 80°47'49.80" 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 1H TOP HOLE INFORMATION: N: 4,373,136m E: 516,271m BOTTOM HOLE INFORMATION: N: 4,369,810m E: 517,460m

WV NORTH ZONE GRID NORTH

Table with 2 columns: Parcel ID and Owner Name. Lists various landowners in Ellsworth and MacElroy Districts, including James Barnhart, Harvey Miller Et Al, and others.

8,149' TO BOTTOM HOLE

12,401'

LONGITUDE 80°47'30"

LONGITUDE 80°47'30"

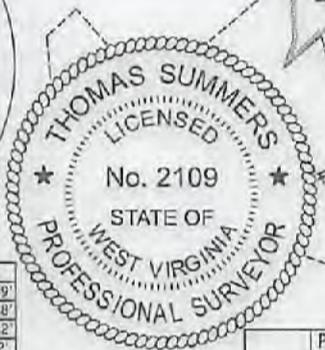
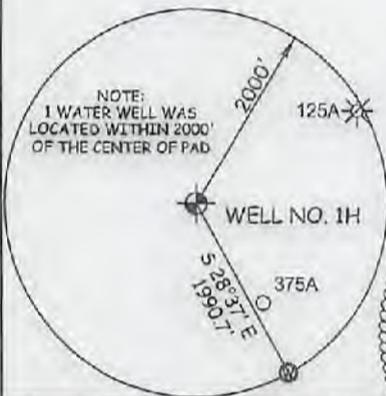


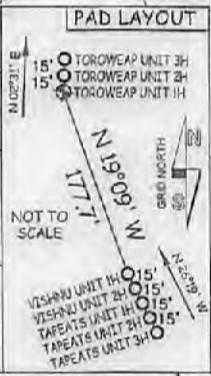
Table with 6 columns: LINE, BEARING, DIST., LINE, BEARING, DIST. Lists boundary line measurements.

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 220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415



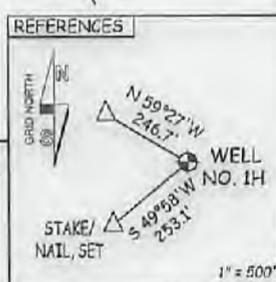
JOB # 21-011WA DRAWING # TOROWEAP1H SCALE 1" = 2000' MINIMUM DEGREE OF ACCURACY SUBMETER PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

LEGEND Surface Owner Boundary Lines +/- Adjoining Surface Tracts +/- Found monument, as noted

STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS

DATE 11/02/21 OPERATOR'S WELL# TOROWEAP UNIT #1H

(NAD) 27 (UTM) ZONE 17 COORDS: WELL 1H TOP HOLE INFORMATION: N: 14,346,816ft E: 1,693,753ft POINT OF ENTRY INFORMATION: N: 14,346,694ft E: 1,693,874ft BOTTOM HOLE INFORMATION: N: 14,335,904ft E: 1,697,653ft



WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL 47 095 - 02765 H6A (IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X STATE COUNTY PERMIT LOCATION: ELEVATION AS BUILT - 1,243.5' WATERSHED OUTLET MIDDLE ISLAND CREEK QUADRANGLE PORTER FALLS 7.5' DISTRICT ELLSWORTH COUNTY TYLER SURFACE OWNER KENNETH TOMBLIN ET AL ACREAGE 290.32 ACRES +/- OIL & GAS ROYALTY OWNER S. A. SMITH AND C. B. MORRIS HEIRS TRUST; BETTY MOREHEAD ET VIR; LEASE ACREAGE 290.32 AC.±: 68.88 AC.±: JAY A. WRIGHT ET UX; MORRIS MOUNTAINEER OIL & GAS LLC; CAROL J. KNAPP; 40.81 AC.±: 45.98 AC.±: 77.5 AC.±: 2/17/2021 BERNICE BAKER; JAMES A. WEEKLEY ET AL; JANIE DEMOON TRUST; MICHAEL SHERWOOD 45 AC.±: 58.5 AC.±: 20 AC.±: 32.5 AC.±:

PROPOSED WORK: DRILL X CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION PERFORATE NEW FORMATION X OTHER PHYSICAL CHANGE IN WELL (SPECIFY) PLUG & ABANDON CLEAN OUT & REPLUG TARGET FORMATION MARCELLUS ESTIMATED DEPTH 7,400' TVD 19,500' MD WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM ADDRESS 1615 WYNKOOP ST. ADDRESS 5400 D BIG TYLER ROAD FORM WW-6 DENVER, CO 80202 CHARLESTON, WV 25313

COUNTY NAME PERMIT

WW-6A1
(5/13)

Operator's Well No. Toroweap Unit 1H

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

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

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

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
Michael Sherwood	Michael Sherwood JB Exploration i, LLC	JB Exploration I, LLC Antero Resources Corporation	1/8+ Assignment	0398/0342 0134/0700

***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

RECEIVED
Office of Oil and Gas

NOV 12 2021

WV Department of
Environmental Protection

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

Well Operator: Antero Resources Corporation
 By: Tim Rady
 Its: VP of Land

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

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

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

Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<u>S.A. Smith and C. B Morris Heirs Trust Lease</u>			
S.A. Smith and C. Burke Morris Heirs Trust	Antero Resources Corporation	1/8+	0022/0268
<u>Betty Morehead, et vir Lease</u>			
Betty Morehead, et vir	Antero Resources Corporation	1/8+	0498/0111
<u>Jay A. Wright, et ux Lease</u>			
Jay A. Wright, et ux	Antero Resources Corporation	1/8+	0489/0026
<u>Betty Morehead, et vir Lease</u>			
Betty Morehead, et vir	Antero Resources Corporation	1/8+	0498/0111
<u>Morris Mountaineer Oil & Gas, LLC Lease</u>			
Morris Mountaineer Oil & Gas, LLC	Antero Resources Corporation	1/8+	0084/0428
<u>Carol J. Knapp Lease</u>			
Carol J. Knapp	Jay-Bee Production Company	1/8	0388/0141
Jay-Bee Production Company	Statoil USA Onshore Properties, Inc	Assignment	0469/0419
Statoil USA Onshore Properties, Inc	EQT Production Company	Assignment	0539/0239
EQT Production Company	Antero Resources Corporation	Assignment	0663/0001
<u>Bernice Baker Lease</u>			
Bernice Baker	Jay-Bee Production Company	1/8	0391/0221
Jay-Bee Production Company	Statoil USA Onshore Properties, Inc	Assignment	0469/0419
Statoil USA Onshore Properties, Inc	EQT Production Company	Assignment	0539/0239
EQT Production Company	Antero Resources Corporation	Assignment	0663/0001
<u>James A. Weekley, et al Lease</u>			
James A. Weekley, et al	South Penn Oil Company	1/8	0048/0464
South Penn Oil Company	Hope Natural Gas Company	Assignment	0072/0067
Hoe Natural Gas Company	Consolidated Gas Supply Corporation	Conveyance	0169/0026
Consolidated Gas Supply Corporation	Consolidated Gas Transmission	Assignment	0249/0287
Consolidated Gas Transmission	CNG Development Company	Assignment	0253/0057
CNG Development Company	CNG Producing Company	Name Change	WVSOS
CNG Producing Company	Dominion Exploration & Production, Inc	Name Change	WVSOS
Dominion Exploration & Production, Inc	CONSOL Gas Company, LLC	Name Change	0009/0167
CONSOL Gas Company	CNX Gas Company, LLC	Merger	0009/0206
CNX Gas Company, LLC	Antero Resources Corporation	Assignment	0131/0592

RECEIVED
Office of Oil and Gas

NOV 12 2021

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

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

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

Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<u>Janie Denoon Trust Lease</u>			
Janie Denoon Trust	Chesapeake Appalachia LLC	1/8	0413/0629
Chesapeake Appalachia LLC	Statoil USA Onshore Properties, Inc	Assignment	0443/0552
Statoil USA Onshore Properties, Inc	SWN Exchange Titleholder, LLC	Assignment	0470/0668
SWN Exchange Titleholder, LLC	SWN Production Company, LLC	Merger	0009/0404
SWN Production Company, LLC	Antero Exchange Properties	Assignment	0544/0242
Antero Exchange Properties	Antero Resources Corporation	Merger	0552/0315



Antero Resources
1615 Wynkoop St.
Denver, CO 80202
Office: 303.357.7310
Fax: 303.357.7315

November 9, 2021

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

RE: Toroweap Unit 1H
Quadrangle: Porter Falls 7.5'
Tyler County/Ellsworth District, West Virginia

Mr. Martin:

Antero Resources Corporation (Antero) is submitting the following application for a new well work permit for the Toroweap Unit 1H horizontal shallow well. As an authorized representative, I certify that Antero has the right to extract, produce or market the oil or gas for all leases through which the Toroweap Unit 1H horizontal lateral will drill through including any and all roads crossed under as identified on the attached survey plat.

Sincerely,

A handwritten signature in blue ink, appearing to read "Tyler Adams", written over a light blue horizontal line.

Tyler Adams

Landman

RECEIVED
Office of Oil and Gas

NOV 12 2021

WV Department of
Environmental Protection

12/17/2021

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

Date of Notice Certification: 11/10/2021

API No. 47- 095 - 02765
Operator's Well No. Toroweap Unit 1H
Well Pad Name: Grand 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>516,271m</u>
County: <u>Tyler</u>		Northing: <u>4,373,136m</u>
District: <u>Ellsworth</u>	Public Road Access: <u>Gorrells Run Road</u>	
Quadrangle: <u>Porter Falls 7.5'</u>	Generally used farm name: <u>Kenneth Tomblin et ux</u>	
Watershed: <u>Outlet Middle Island Creek</u>		

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

Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following: *PLEASE CHECK ALL THAT APPLY <input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED <input type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input checked="" type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED <input checked="" type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or <input type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH) <input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION <input checked="" type="checkbox"/> 5. PUBLIC NOTICE <input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION		OOG OFFICE USE ONLY <input type="checkbox"/> RECEIVED/ NOT REQUIRED <input type="checkbox"/> RECEIVED <input type="checkbox"/> RECEIVED/ NOT REQUIRED <input type="checkbox"/> RECEIVED <input type="checkbox"/> RECEIVED <input type="checkbox"/> RECEIVED
RECEIVED Office of Oil and Gas NOV 12 2021 WV Department of Environmental Protection		

Required Attachments:

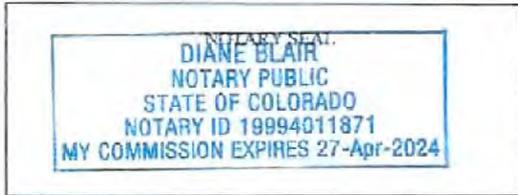
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication 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 Diana Hoff, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Well Operator: Antero Resources Corporation
By: Diana Hoff *Diana O. Hoff*
Its: Sr. VP of Operations
Telephone: 304-842-4153

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



Subscribed and sworn before me this 10th day of NOV 2021.

Diane Blair Notary Public
My Commission Expires 27 Apr 2024

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.

RECEIVED
Office of Oil and Gas
NOV 12 2021
WV Department of
Environmental Protection

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

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

Date of Notice: 11/10/2021 Date Permit Application Filed: 11/11/2021

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.

Notice is hereby provided to:

SURFACE OWNER(s)
 Name: Kenneth Tomblin, et ux
 Address: 5913 Greencrest Drive
 Hamilton, OH 45011
 Name: _____
 Address: _____

SURFACE OWNER(s) (Road and/or Other Disturbance)
 Name: Kenneth Tomblin, et ux
 Address: 5913 Greencrest Drive
 Hamilton, OH 45011
 Name: _____
 Address: _____

SURFACE OWNER(s) (Impoundments/Pits)
 Name: Not Applicable
 Address: _____

COAL OWNER OR LESSEE
 Name: None on record with County
 Address: _____

COAL OPERATOR
 Name: None on record with County
 Address: _____

WATER PURVEYOR(s)
 Name: See Attachment
 Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD
 Name: Not Applicable
 Address: _____

RECEIVED
Office of Oil and Gas

NOV 12 2021

WV Department of
Environmental Protection

*Please attach additional forms if necessary

12/17/2021

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 also 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.

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

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.

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.

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 wellpad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such

factors, if necessary.

Written Comment:

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

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

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

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 the time 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.

RECEIVED
Office of Oil and Gas

NOV 12 2021

WV Department of
Environmental Protection

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.

WW-6A
(5-12)

API NO. 47- 055 - 02765
OPERATOR WELL NO. Township Unit 191
Well Pad Name: Grand Pad

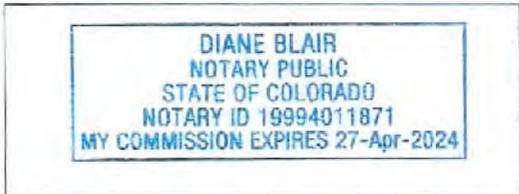
Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the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

Notice is hereby given by:

Well Operator: Antero Resources Corporation Address: 1615 Wynkoop Street
Telephone: 304-842-4153 Diana O. Hoff Denver, CO 80202
Email: mhamsher@anteroresources.com Facsimile: 303-357-7315

Oil and Gas Privacy Notice:

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

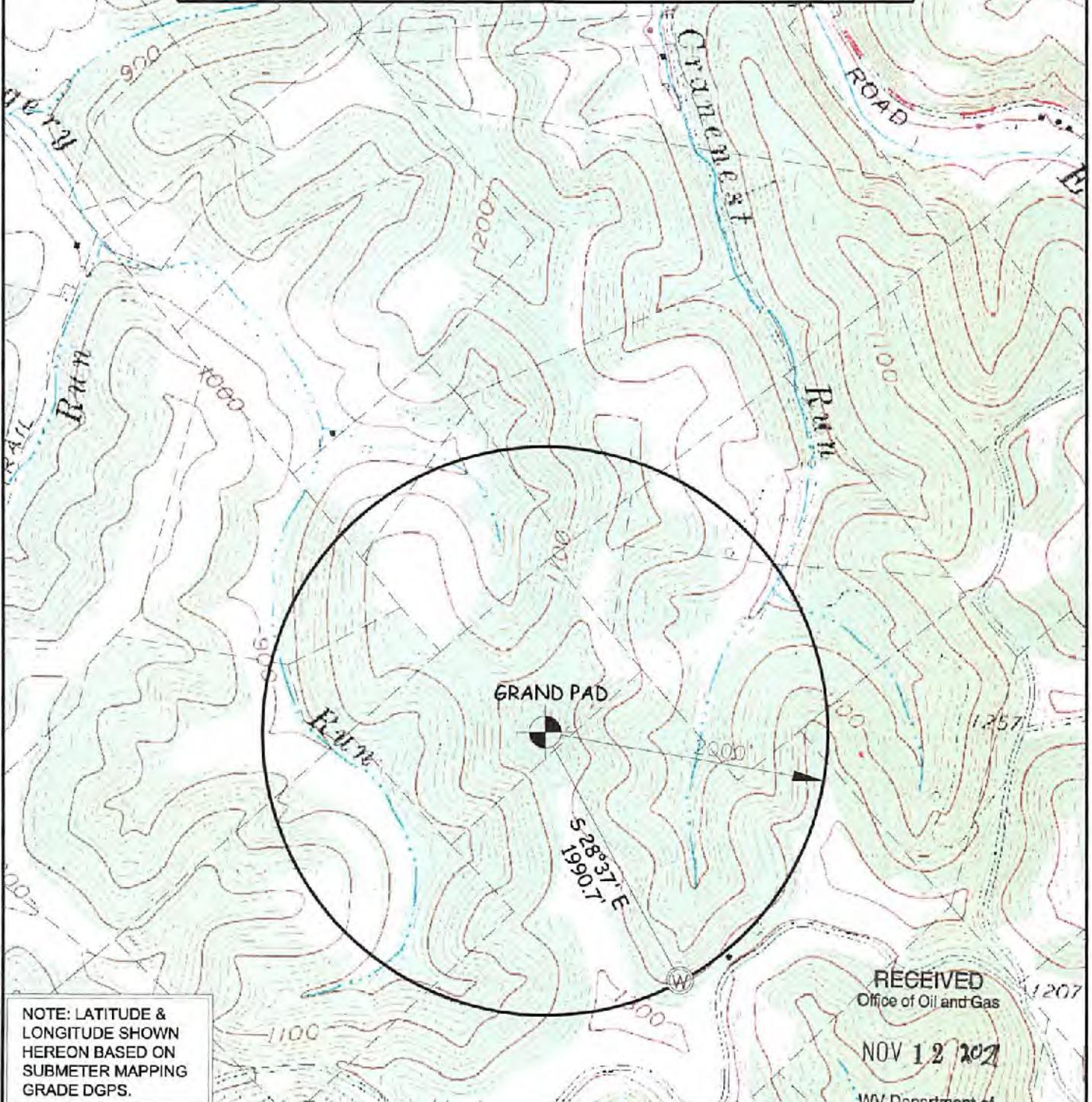


Subscribed and sworn before me this 10th day of Nov 2021
Diane Blair Notary Public
My Commission Expires 27 Apr 2024

RECEIVED
Office of Oil and Gas
NOV 12 2021
WV Department of
Environmental Protection

12/17/2021

GRAND PAD ANTERO RESOURCES CORPORATION



NOTE: LATITUDE & LONGITUDE SHOWN HEREON BASED ON SUBMETER MAPPING GRADE DGPS.

RECEIVED
Office of Oil and Gas
NOV 12 2021

WV Department of Environmental Protection

SURFACE OWNER	ADDRESS	DIST-TAX MAP-PAR	WELL ENVIRONMENTAL PROTECTION	LONGITUDE
KENNETH TOMBLIN ET AL	5913 GREENCREST DR., HAMILTON, OH 45011	2-16-28	39°30'09.49"	80°48'26.56"

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

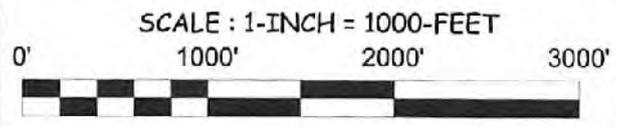
TOPO SECTION(S) OF :
PORTER FALLS, WV 7.5'

JOB #: 20-00.3WA

DATE: 09.14.2020

DRAWN BY: D.R.R.

FILE: GRAND PAD WW



12/17/2021

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: 10/01/2021 **Date Permit Application Filed:** 11/11/2021

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: Kenneth Tomblin et ux
Address: 5913 Greencrest Drive
Hamilton, OH 45011

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>515,721m</u>
County:	<u>Tyler County</u>		Northing:	<u>4,731,136m</u>
District:	<u>Ellsworth</u>	Public Road Access:	<u>Gorrells Run Road</u>	
Quadrangle:	<u>Porter Falls 7.5'</u>	Generally used farm name:	<u>Kenneth Tomblin et ux</u>	
Watershed:	<u>Outlet Middle Island Creek</u>			

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(b), this notice shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Notice is hereby given by:

Well Operator: Antero Resources Corporation
Address: 1615 Wynkoop Street
Denver, CO 80202
Telephone: 304-842-4153
Email: mhamsher@anteroresources.com
Facsimile: 303-357-7315

Authorized Representative: Melissa Hamsher
Address: 1615 Wynkoop Street
Denver, CO 80202
Telephone: 304-842-4153
Email: mhamsher@anteroresources.com
Facsimile: 303-357-7315

Oil and Gas Privacy Notice:

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

RECEIVED
Office of Oil and Gas

NOV 12 2021

WV Department of
Environmental Protection
12/17/2021

CERTIFIED MAIL RECEIPTS
WW-6A4 GRAND TOROWEAP UNIT 1H

10/1/21, 3:29 PM

FedEx Ship Manager - Print Your Label(s)



Shipment Receipt

Address Information**Ship to:**

Kenneth Tomblin et ux

5913 Greencrest Drive

HAMILTON, OH

45011

US

7174437098

Ship from:

Melissa Hamsher

ANTERO RESOURCES

1615 Wynkoop Street

DENVER, CO

80202

US

304-842-4153

Shipment Information:

Tracking no.: 774862277876

Ship date: 10/01/2021

Estimated shipping charges: 24.30 USD

Package Information

Pricing option: FedEx One Rate

Service type: FedEx 2Day

Package type: FedEx Envelope

Number of packages: 1

Total weight:

Declared Value: 0.00 USD

Special Services: Residential Delivery

Pickup/Drop-off: Drop off package at FedEx location

Billing Information:

Bill transportation to: ANTERO RESOURCES-966

Your reference: Toroweap Unit 1H 6A4

PO no.:

Invoice no.:

Department no.:

12/17/2021

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
VOLUNTARY STATEMENT OF NO OBJECTION

Instructions to Persons Named on Page WW-6A

The well operator named on page WW-6A is applying for a permit from the State of West Virginia to conduct oil or gas well work. Well work permits are valid for twenty-four (24) months. Please contact the listed well operator and the Office of Oil and Gas if you do not own any interest in the listed surface tract.

Comment and Waiver Provisions

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.

Pursuant to West Virginia Code § 22-6A-8(b) No permit may be issued less than thirty days after the filing date of the application for any well work except plugging or replugging; and no permit for plugging or replugging may be issued less than five days after the filing date of the application except a permit for plugging or replugging a dry hole: *Provided*, That if the applicant certifies that all persons entitled to notice of the application under the provisions of subsection (b), section ten of this article have been served in person or by certified mail, return receipt requested, with a copy of the well work application, including the erosion and sediment control plan, if required, and the well plat, and further files written statements of no objection by all such persons, the secretary may issue the well work permit at any time.

VOLUNTARY STATEMENT OF NO OBJECTION

I, _____, hereby state that I have read the Instructions to Persons Named on Page WW-6A and the associated provisions listed above, and that I have received copies of a Notice of Application, an Application for a Well Work Permit on Form WW-6A and attachments consisting of pages one (1) through _____, including the erosion and sediment control plan, if required, and the well plat, all for proposed well work on the tract of land as follows:

State: <u>West Virginia</u>	UTM NAD 83 Easting: <u>516,271m</u>
County: <u>Tyler</u>	Northing: <u>4,373,136m</u>
District: <u>Ellsworth</u>	Public Road Access: <u>Gorrells Run Road</u>
Quadrangle: <u>Porter Falls 7.5'</u>	Generally used farm name: <u>Kenneth Tomblin et ux</u>
Watershed: <u>Outlet Middle Island Creek</u>	

I further state that I have no objection to the planned work described in these materials, and I have no objection to a permit being issued on those materials.

<p>*Please check the box that applies</p> <p><input type="checkbox"/> SURFACE OWNER</p> <p><input type="checkbox"/> SURFACE OWNER (Road and/or Other Disturbance)</p> <p><input type="checkbox"/> SURFACE OWNER (Impoundments/Pits)</p> <p><input type="checkbox"/> COAL OWNER OR LESSEE</p> <p><input type="checkbox"/> COAL OPERATOR</p> <p><input type="checkbox"/> WATER PURVEYOR</p> <p><input type="checkbox"/> OPERATOR OF ANY NATURAL GAS STORAGE FIELD</p>	<p>FOR EXECUTION BY A NATURAL PERSON</p> <p>Signature: _____</p> <p>Print Name: _____</p> <p>Date: _____</p> <p>FOR EXECUTION BY A CORPORATION, ETC.</p> <p>Company: _____</p> <p>By: _____</p> <p>Its: _____</p> <p>Signature: _____</p> <p>Date: _____</p>
---	--

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.

RECEIVED
Office of Oil and Gas
NOV 12 2021
12/17/2021
WV Department of Environmental Protection



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

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

D. Alan Reed, P.E.
State Highway Engineer

Jimmy Wriston, P. E.
Secretary of Transportation
Commissioner of Highways

October 19, 2021

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

Subject: DOH Permit for the Grand Pad, Tyler County
Toroweap Unit 1H Well Site

Dear Mr. Martin,

This well site will be accessed from a DOH permit #06-2020-0048 which has been issued to Antero Resources for access to the State Road for a well site located off Tyler County Route 34 SLS MP 6.91.

This operator is in compliance with §22-6A-20 of the WV Code. 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 October 1, 2018. This letter is valid for permitting purposes for one year from the date of this letter.

Very Truly Yours,

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

Cc: Melissa Hamsher
Antero Resources
CH, OM, D-6
File

RECEIVED
Office of Oil and Gas

NOV 12 2021

WV Department of
Environmental Protection

List of Anticipated Additives Used for Fracturing or Stimulating Well

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

RECEIVED

Office of Oil and Gas

NOV 12 2021

WV Department of
Environmental Protection

12/17/2021

LOCATION COORDINATES

SITE LOCATIONS	WY85-11F (NORTH ZONE)		UTM85-11F	
	LATITUDE	LONGITUDE	NORTHING	EASTING
MAIN ACCESS ROAD ENTRANCE	39.522069	-80.819223	4372269.859	514267.462
CENTROID OF WELL PAD	39.521476	-80.819834	4373811.267	514276.324
CENTER OF CONTAINMENT TANK	39.525583	-80.820834	4372886.787	514396.125

GENERAL DESCRIPTION:

THE ACCESS ROADS, WATER CONTAINMENT PAD, AND WELL PAD ARE BEING CONSTRUCTED TO AID IN THE DEVELOPMENT OF INDIVIDUAL MARCELLUS SHALE GAS WELLS.

FLOODPLAIN NOTES:

THE PROPOSED SITE LOCATION IS NOT WITHIN ANY IDENTIFIED ZONES PER FEMA MAP NUMBER(S) 846002073C-ZONE X

MISS UTILITY STATEMENT:

ANTERO RESOURCES CORP. WILL NOTIFY MISS UTILITY OF WEST VIRGINIA FOR THE LOCATION OF UTILITIES PRIOR TO THIS PROJECT DESIGN TICKET # 190719235. IN ADDITION, MISS UTILITY WILL BE CONTACTED BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION FOR THIS PROJECT.

ENTRANCE PERMIT:

ANTERO RESOURCES CORP. WILL OBTAIN AN ENCROACHMENT PERMIT (FROM 844 105) FROM THE WEST VIRGINIA DEPARTMENT OF TRANSPORTATION DIVISION OF HIGHWAYS, PRIOR TO COMMENCEMENT OF CONSTRUCTION ACTIVITIES.

ENVIRONMENTAL NOTES:

STREAM AND WETLAND DELINEATIONS WERE PERFORMED IN NOVEMBER 2018 BY GAI CONSULTANTS TO REVIEW THE SITE FOR WATERS AND WETLANDS THAT ARE MOST LIKELY WITHIN THE REGULATORY JURISDICTION OF THE U.S. ARMY CORPS OF ENGINEERS (USACE) AND/OR THE WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION (WVDEP). THE NOVEMBER 2018 STREAM AND WETLAND DELINEATION MAP WAS PREPARED BY GAI CONSULTANTS AND SUMMARIZES THE RESULTS OF THE FIELD DELINEATION. THE MAP DOES NOT, IN ANY WAY, REPRESENT A JURISDICTIONAL DETERMINATION OF THE LANDWARD LIMITS OF WATERS AND WETLANDS WHICH MAY BE REGULATED BY THE USACE OR THE WVDEP. IT IS STRONGLY RECOMMENDED THAT THE PROMENTIONED AGENCIES BE CONSULTED IN AN EFFORT TO OBTAIN WRITTEN CONFIRMATION OF THE DELINEATION SHOWN ON THE EXHIBIT PRIOR TO ENGAGING IN CONSTRUCTION ON THE PROPERTIES DESCRIBED HEREIN. THE DEVELOPER SHALL OBTAIN THE APPROPRIATE PERMITS FROM THE FEDERAL AND/OR STATE REGULATORY AGENCIES PRIOR TO ANY PROPOSED IMPACTS TO WATERS OF THE U.S. INCLUDING WFTL AND FLS AND STREAM CROSSINGS.

GEOTECHNICAL NOTES:

THE PROPOSED CUTSILL SLOPES (2:1) SHALL BE FIELD VERIFIED BY A CERTIFIED GEOTECHNICAL ENGINEER TO ENSURE THE PROPOSED SLOPES ARE ADEQUATE PRIOR TO CONSTRUCTION. SITE CONSTRUCTION SHALL BE MONITORED BY A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER OR PROJECT DESIGN ENGINEER DURING CONSTRUCTION.

RESTRICTION NOTES:

1. THERE ARE NO LAKES OR RESERVOIRS WITHIN 100 FEET OF THE WELL PAD LOD.
2. THERE ARE NO WETLANDS TO BE DISTURBED OR WITHIN 100' OF THE WELL PAD LOD.
3. THERE ARE NO PERMANENT STREAM IMPACTS THAT WILL NEED TO BE PERMITTED BY THE APPROPRIATE AGENCIES.
4. THERE ARE NO PERMANENT STREAMS WITHIN 100 FEET OF THE WELL PAD LOD.
5. THERE ARE NO NATURALLY FLOODING TROCK STREAMS WITHIN 50 FEET OF THE WELL PAD LOD.
6. THERE ARE NO GROUNDWATER INTAKE OR PUBLIC WATER SUPPLY FACILITIES WITHIN 1000 FEET OF THE WELL PAD LOD.
7. THERE ARE NO APPARENT EXISTING WATER WELLS OR DEVELOPED SPRINGS WITHIN 250 FEET OF THE WELL PAD LOD.
8. THERE ARE NO OCCUPIED DWELLING STRUCTURES WITHIN 500 FEET OF THE CENTER OF THE WELL PAD.
9. THERE ARE NO AERIAL TOWER, BLDG OR LARGER THAN 2,500 SQUARE FEET WITHIN 425 FEET OF THE CENTER OF THE WELL PAD.

PROJECT CONTACTS:

OPERATOR:

ANTERO RESOURCES CORPORATION
555 WHITE OAK BLVD.
BIRDSPORT, WV 26030
PHONE: (204) 862-4000
FAX: (204) 842-4102

ELLI WAGGNER - ENVIRONMENTAL & REGULATORY MANAGER
OFFICE: (204) 862-4000
CELL: (204) 478-2776

JON MEYERS - DIRECTOR COMPLETION OPERATIONS
OFFICE: (204) 357-6796 CELL: (204) 868-2423

AARON KUNZLER - CONSTRUCTION MANAGER
OFFICE: (204) 842-4191

BRIAN REYNOLDS - DESIGN ENGINEER
OFFICE: (204) 842-4000 CELL: (204) 841-3300

CHARLES E. COOPMAN, II - UTILITY COORDINATOR
CELL: (204) 719-8449

DAVID PATBY - LAND AGENT
OFFICE: (204) 478-8090

ENGINEER/SURVEYOR:

DIEFFENBAUCH & HRITZ
ERIC N. STEINHAUS, P.E. - ENGINEERING MANAGER
OFFICE: (204) 842-3142
CELL: (204) 842-3142

ENVIRONMENTAL:

GAI CONSULTANTS
JASON COOK - PROJECT MANAGER
OFFICE: (204) 758-2300

GEOTECHNICAL:

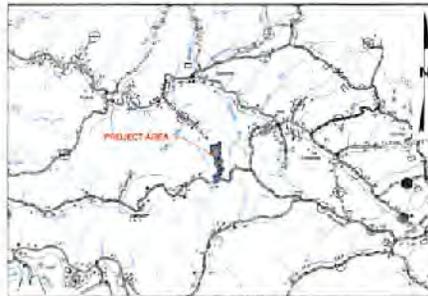
WDE, LLC
GENE BROWN - MANAGER OF GEOTECHNICAL SERVICES
OFFICE: (204) 201-6190
CELL: (204) 588-7885

EROSION & SEDIMENT CONTROL PLAN & SITE RESTORATION PLAN

GRAND WELL SITE
ELLSWORTH DISTRICT, TYLER COUNTY, WV
FOR
ANTERO RESOURCES CORPORATION



REFERENCES: UNITED STATES GEOLOGICAL SURVEY - PORTER FALLS QUADRANGLE, WV, 7.5 MINUTE SERIES



INDEX

DRAWING NO.	TITLE	DRAWING NO.	TITLE
1	TITLE SHEET	11	ACCESS ROAD PROFILE
2	GENERAL NOTES	12-13	ACCESS ROAD CROSS SECTIONS
3-5A	QUANTITIES LIST	14-20	E&S TYPICAL SECTIONS
4	E&S CALCULATIONS	21	CLS WEST PROFILES
5	EXISTING STRUCTURES	22-29	E&S DETAILS
6	EXISTING CONDITIONS	30	CONSTRUCTION DETAILS
7	OVERALL E&S SITE PLAN	31	OVERALL RESTORATION SITE PLAN
8-10	PROPOSED SITE PLAN	32-34	PROPOSED SITE RESTORATION PLAN

LIMITS OF DISTURBANCE PARCEL BREAK UPS - GRAND WELL SITE

TYLER COUNTY, WEST VIRGINIA							
OWNER	TWP/PARCEL	DEED/DATE	TOTAL ACRES	TYPE OF DISTURBANCE	ACREAGE	WOODS	NON-WOODS
TOMLIN, KENNETH L & LORI B MICHAEL	18-36	244-413	230.32	ACCESS ROAD	12.10	92.23	1.87
				WELL PAD	13.72	13.72	
				AST PAD	4.51	3.77	1.80
				SPOIL PILE #1	1.81	1.81	
				SPOIL PILE #2	1.03	1.07	
				SPOIL PILE #3	1.42	0.31	0.81
				SPOIL PILE #4	1.38	1.88	
				SPOIL PILE #5	5.23	3.23	
				SPOIL PILE #6	1.44	1.44	
				SPOIL PILE #7	2.24	2.84	
			SPOIL PILE #8	0.28	0.28		
			PARCEL TOTAL	4424	38.78	4.08	
TOMLIN, MICHAEL, LPI	18-20	244-411	98.00	SPOIL PILE #9	0.97	0.97	
			PARCEL TOTAL	9.97	0.97		

GRADING VOLUMES

DESCRIPTION	CUY (CY)	FILL (CY)	NET (CY)
ACCESS ROAD	38,148	6,362	22,284
WELL PAD	108,308	10,384	27,328
AST PAD	22,097	12,820	9,277
SPOIL PILE #1	0	9,191	-9,191
SPOIL PILE #2	0	4,618	-4,618
SPOIL PILE #3	0	9,322	-9,322
SPOIL PILE #4	0	9,372	-9,372
SPOIL PILE #5	0	32,267	-32,267
SPOIL PILE #6	0	7,197	-7,197
SPOIL PILE #7	0	15,880	-15,880
SPOIL PILE #8	0	3,090	-3,090
TOTAL	169,543	208,833	38,284
TOPSOIL STRIPPING		31,817 G.T.	
TOTAL EXCAVATION	201,360	240,650	39,294

L.O.B. AREAS

DESCRIPTION	ACRES
MAIN ACCESS ROAD	12.10
WELL PAD	13.72
AST PAD	4.52
SPOIL PILE #1	1.81
SPOIL PILE #2	1.07
SPOIL PILE #3	1.42
SPOIL PILE #4	1.38
SPOIL PILE #5	3.23
SPOIL PILE #6	1.44
SPOIL PILE #7	2.84
SPOIL PILE #8	0.28
TOTAL	44.91
WOODS	49.32

WELL LEGEND

WELL HEAD	WV NORTH HAD 27	WV NORTH HAD 83	UTM85	NAD 83
	N: 36939.172	N: 38934.4815	N: 437106.71	LAT: 39° 32' 28.76"
GRAND UNIT SH	E: 159976.162	E: 159935.091	E: 510254.412	LONG: -80° 48' 38.36"



PROJECT NO. 19048-001
JAN 2020

DIEFFENBAUCH & HRITZ, LLC



DRAWN BY: [Name] DATE: 03/20/20
 CHECKED BY: [Name] DATE: 03/23/20
 APPROVED BY: [Name] DATE: 03/23/20
 PROJECT NO: 19048-001 PROJECT DATE: 01/20/20
 DIEFFENBAUCH & HRITZ, LLC
 1000 W. MAIN ST., MARTINSBURG, WV 26150
 P. 304.842.3142 F. 304.842.3143
 ANTERO RESOURCES CORPORATION
 GRAND WELL SITE
 ELLSWORTH DISTRICT
 TYLER COUNTY, WV
 TITLE SHEET
 1

SCALE: 1" = 100' PLOTTED: 3/12/20 13.5" W. FILE: X02 AND GABANTD020191046101 - GRAND WELL SITE/CDOT/ANR/02/02/20 PWA.DWG TITLE SHEET.DWG

