



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

Austin Caperton, Cabinet Secretary
www.dep.wv.gov

Wednesday, June 27, 2018
PERMIT MODIFICATION APPROVAL
Horizontal 6A / Horizontal 6A Well - 1

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit Modification Approval for MANZAREK UNIT 1H
47-017-06775-00-00

Lateral Extension

ANTERO RESOURCES CORPORATION

The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before 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: MANZAREK UNIT 1H
Farm Name: FOSTER, YVONNE
U.S. WELL NUMBER: 47-017-06775-00-00
Horizontal 6A Horizontal 6A Well - 1
Date Modification Issued: June 27, 2018

Promoting a healthy environment.

06/29/2018

WW-6B
(04/15)

API NO. 47- 017 - 06775 MOD

OPERATOR WELL NO. Manzarek Unit 1H

Well Pad Name: Yvonne Pad

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

1) Well Operator: Antero Resources Corporation 494507062 017 - Doddri West Uni West Union 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Manzarek Unit 1H Well Pad Name: Yvonne Pad

3) Farm Name/Surface Owner: Foster, Yvonne Public Road Access: CR 24 (Knight Fork Rd.)

4) Elevation, current ground: _____ Elevation, proposed post-construction: 1229'

5) Well Type (a) Gas Oil _____ Underground Storage _____

Other _____

(b) If Gas Shallow Deep _____

Horizontal _____

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus Shale: 6898' TVD, Anticipated Thickness- 55 feet, Associated Pressure- 2950#

8) Proposed Total Vertical Depth: 6898' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 14020' MD

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11) Proposed Horizontal Leg Length: 6843'

JUN 21 2018

12) Approximate Fresh Water Strata Depths: 287', 378', 462'

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

14) Approximate Saltwater Depths: 872', 1155', 1491'

15) Approximate Coal Seam Depths: 419', 872', 875'

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: _____

WW-6B
(04/15)

API NO. 47- 017 - 06775 MOD

OPERATOR WELL NO. Manzarek Unit 1H

Well Pad Name: Yvonne Pad

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#	65'	65'	CTS, 62 Cu. Ft.
Fresh Water	13-3/8"	New	J-55/H-40	54.5#/48#	520' *see #19	520' *see #19	CTS, 722 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	2500'	2500'	CTS, 1018 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	20#	14020'	14020'	3448 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#		7100'	
Liners							

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	30"	24"	0.438"	1530	50	Class A	1.18
Fresh Water	13-3/8"	17-1/2"	0.38"/0.33"	2730/1730	1000	Class A	1.18
Coal	9-5/8"	12-1/4"	0.352"	3520	1500	Class A	1.18
Intermediate							
Production	5-1/2"	8-3/4" & 8-1/2"	0.361"	12,630	2500	Lead-H/POZ & Tail - H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11,200			
Liners							

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PACKERS

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

WW-6B
(10/14)

PERMIT MODIFICATION API# 47-017-06775
API NO. 47- 017 - 06775 MOD
OPERATOR WELL NO. Manzarek Unit 1H
Well Pad Name: Yvonne Pad

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.
*Antero will be air drilling the fresh water string which makes it difficult to determine when fresh water is encountered. Therefore, we have built in a buffer for the casing setting depth which helps to ensure that all fresh water zones are covered.

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): 35.70 acres

22) Area to be disturbed for well pad only, less access road (acres): 6.9 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.

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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.

47-017-06775 Mon

PERMIT MODIFICATION API# 47-017-06775

UWI (APINum)	Well Name	Well Number	Operator	Hist Oper	TD
47017037270000	PITTS STEPHEN	1	CONSOL GAS COMPANY	STONEWALL GAS	5459
47017038580000	FREEMAN GEORGE HEIRS	2	CONSOL GAS COMPANY	STONEWALL GAS	5400
47017038570000	FREEMAN GEORGE HEIRS	1	CONSOL GAS COMPANY	STONEWALL GAS	5400
47017025840000	WETZEL LOUIS N	J-123	ENERGY CORP OF AMER	J & J ENTERPRISES	5150

ELEV_GR	Approx distance to well	TD(SSTVD)	Gross Perf interval	Producing Formation(s)	Productible Formation(s) not perf'd*
1219	359	-4240	4724-5162	Riley, Benson	Keener, Big Injun, Weir, Berea, Gordon, Warren, Speechley, Balttown, Bradford, Alexander
1234	296	-4166	4777-5212	Riley, Benson	Keener, Big Injun, Weir, Berea, Gordon, Warren, Speechley, Balttown, Bradford, Alexander
1206	245	-4194	4725-5168	Riley, Benson	Keener, Big Injun, Weir, Berea, Gordon, Warren, Speechley, Balttown, Bradford, Alexander
992	450	-4158	2010-4961	Keener, Big Injun, Weir, Berea, Gordon, Warren, Speechley, Riley, Benson	Balttown, Bradford, Alexander

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06/29/2018

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>Freeman Paul Smith et ux, et al Lease</u>			
Freeman Paul Smith	Key Oil Company	1/8	0108/0423
Key Oil Company	J&J Enterprises, Inc.	Assignment & Security Agreement	0115/0558
J&J Enterprises, Inc.	Eastern American Energy Corporation	Confirmatory Deed & Assignment of Leases	0159/0139
Eastern American Energy Corporation	Energy Corporation of America	Confirmatory Deed & Assignment of Leases	0240/0498
Energy Corporation of America	Antero Resources Appalachian Corporation	Partial Assignment of Oil & Gas Leases	0272/0307
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Theda Delores Price Davis, Heir of Esta Faye Price, OGL Lease</u>			
Theda Delores Price Davis, Heir of Esta Faye Price	Antero Resources Corporation	15.00%	340/369
<u>Ed Broome, Inc., Memorandum of Oil & Gas Lease</u>			
Ed Broome, Inc.	Antero Resources Appalachian Corporation	1/8+	0290/0007
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
RECEIVED Office of Oil and Gas JUN 21 2018			
<u>Ed Broome Inc., Memorandum of Oil & Gas Lease</u>			
Ed Broome, Inc.	Antero Resources Appalachian Corporation	1/8+	0292/0724
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
WV Department of Environmental Protection			
<u>Joseph C. Moffatt, et al Lease</u>			
Joseph C. Moffatt	Clarence W. Mutschelknaus	1/8	0157/0325
Clarence W. Mutschelknaus	Bluestone Energy partners	Amended and Restated Memorandum Affidavit Regarding Merger	0232/0021
Bluestone Energy Partners	Antero Resources Bluestone, LLC, a wholly owned subsidiary of Antero Resources Appalachian Corporation		0288/0001
Antero Resources Bluestone, LLC	Antero Resources Corporation	Name Change	Exhibit 1
<u>Patrick A. Costlow, et ux, et al Lease</u>			
Patrick A. Costlow, et ux	Antero Resources Corporation	1/8+	0307/25
<u>Vurl Vore, et ux Lease</u>			
Vurl Vore, et ux	Clarence W. Mutschelknaus	1/8	146/334
Clarence W. Mutschelknaus	Antero Resources Corporation	Agreement	369/373

*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.

WW-6A1
(5/13)

Operator's Well No. Manzarek Unit 1H

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

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

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

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
<u>D & D Spencer Enterprises Co Lease 22173</u>	D & D Spencer Enterprise Co. Antero Resources Appalachian Corp.	Antero Resources Appalachian Corp. Antero Resources Corporation	1/8+ Assignment	262/595 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

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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: Diana Hoff *Diana D. Hoff*
 Its: VP of Operations

**FORM WW-6A1
EXHIBIT 1**

FILED

JUN 10 2013

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



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

**APPLICATION FOR
AMENDED CERTIFICATE
OF AUTHORITY**

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

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

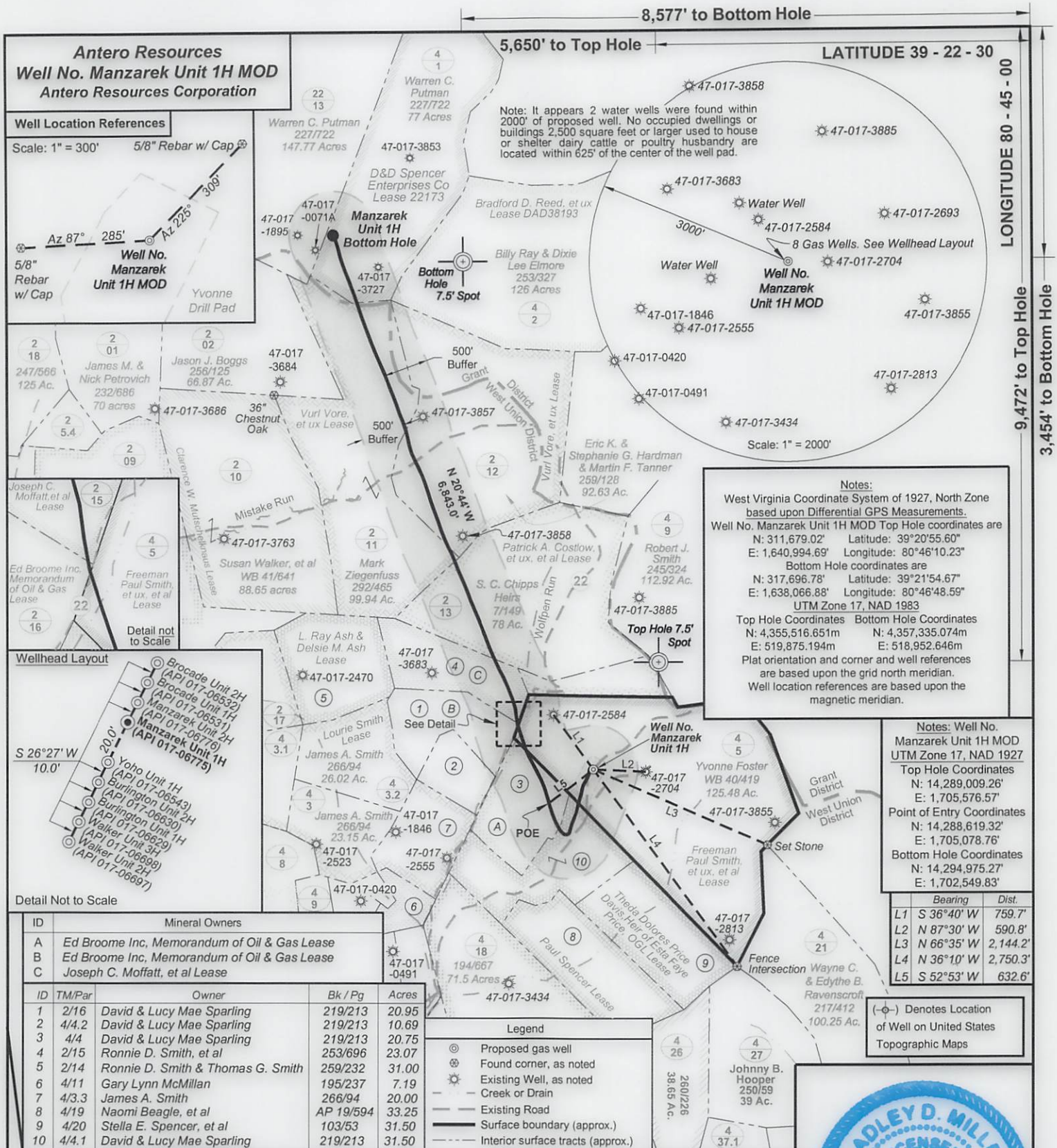
**** In accordance with the provisions of the West Virginia Code, the undersigned corporation hereby ****
applies for an Amended Certificate of Authority and submits the following statement:

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.)
Alwyn A. Schopp (303) 367-7310
Contact Name Phone Number

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JUN 21 2018
WV Department of
Environmental Protection

7. Signature Information (See below **Important Legal Notice Regarding Signature**):
Print Name of Signer: Alwyn A. Schopp Title/Capacity: Authorized Person
Signature: [Handwritten Signature] Date: June 10, 2013

**Important Legal Notice Regarding Signature:* Per West Virginia Code §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.



Antero Resources
Well No. Manzarek Unit 1H MOD
Antero Resources Corporation

Well Location References

Scale: 1" = 300' 5/8" Rebar w/ Cap

Az 87° 285' Az 226° 309'

Well No. Manzarek Unit 1H MOD

Yvonne Drill Pad

Scale: 1" = 2000'

Notes:
 West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.
 Well No. Manzarek Unit 1H MOD Top Hole coordinates are
 N: 311,679.02' Latitude: 39°20'55.60"
 E: 1,640,994.69' Longitude: 80°46'10.23"
 Bottom Hole coordinates are
 N: 317,696.78' Latitude: 39°21'54.67"
 E: 1,638,066.88' Longitude: 80°46'48.59"
 UTM Zone 17, NAD 1983
 Top Hole Coordinates Bottom Hole Coordinates
 N: 4,355,518.651m N: 4,357,335.074m
 E: 519,875.194m E: 518,952.646m
 Plat orientation and corner and well references are based upon the grid north meridian.
 Well location references are based upon the magnetic meridian.

Wellhead Layout

Detail Not to Scale

Brocade Unit 2H (API 017-06532)
 Brocade Unit 1H (API 017-06531)
 Manzarek Unit 2H (API 017-06776)
 Manzarek Unit 1H (API 017-06775)
 Yoho Unit 1H (API 017-06543)
 Burlington Unit 2H (API 017-06530)
 Burlington Unit 1H (API 017-06529)
 Walker Unit 3H (API 017-06699)
 Walker Unit 2H (API 017-06697)

ID	Mineral Owners
A	Ed Broome Inc, Memorandum of Oil & Gas Lease
B	Ed Broome Inc, Memorandum of Oil & Gas Lease
C	Joseph C. Moffatt, et al Lease

ID	TM/Par	Owner	Bk / Pg	Acres
1	2/16	David & Lucy Mae Sparling	219/213	20.95
2	4/4,2	David & Lucy Mae Sparling	219/213	10.69
3	4/4	David & Lucy Mae Sparling	219/213	20.75
4	2/15	Ronnie D. Smith, et al	253/696	23.07
5	2/14	Ronnie D. Smith & Thomas G. Smith	259/232	31.00
6	4/11	Gary Lynn McMillan	195/237	7.19
7	4/3,3	James A. Smith	266/94	20.00
8	4/19	Naomi Beagle, et al	AP 19/594	33.25
9	4/20	Stella E. Spencer, et al	103/53	31.50
10	4/4,1	David & Lucy Mae Sparling	219/213	31.50

Legend

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

Notes: Well No. Manzarek Unit 1H MOD UTM Zone 17, NAD 1927
 Top Hole Coordinates
 N: 14,289,009.26' E: 1,705,576.57'
 Point of Entry Coordinates
 N: 14,288,619.32' E: 1,705,078.76'
 Bottom Hole Coordinates
 N: 14,294,975.27' E: 1,702,549.83'

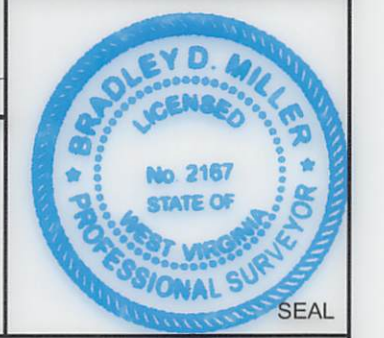
(⊙) Denotes Location of Well on United States Topographic Maps



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

Bradley D. Miller

Bradley D. Miller, P.S. 2167



FILE NO: 264-30(54)-M(G)-14
 DRAWING NO: Manzarek 1H POE-MOD Well Plat
 SCALE: 1" = 1500'
 MINIMUM DEGREE OF ACCURACY: Submeter
 PROVEN SOURCE OF ELEVATION: WVDOT, Harrisville, WV

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

DATE: May 24 20 18
 OPERATOR'S WELL NO. Manzarek Unit 1H
 API WELL NO. 47 - 017 - 06775
 STATE COUNTY PERMIT

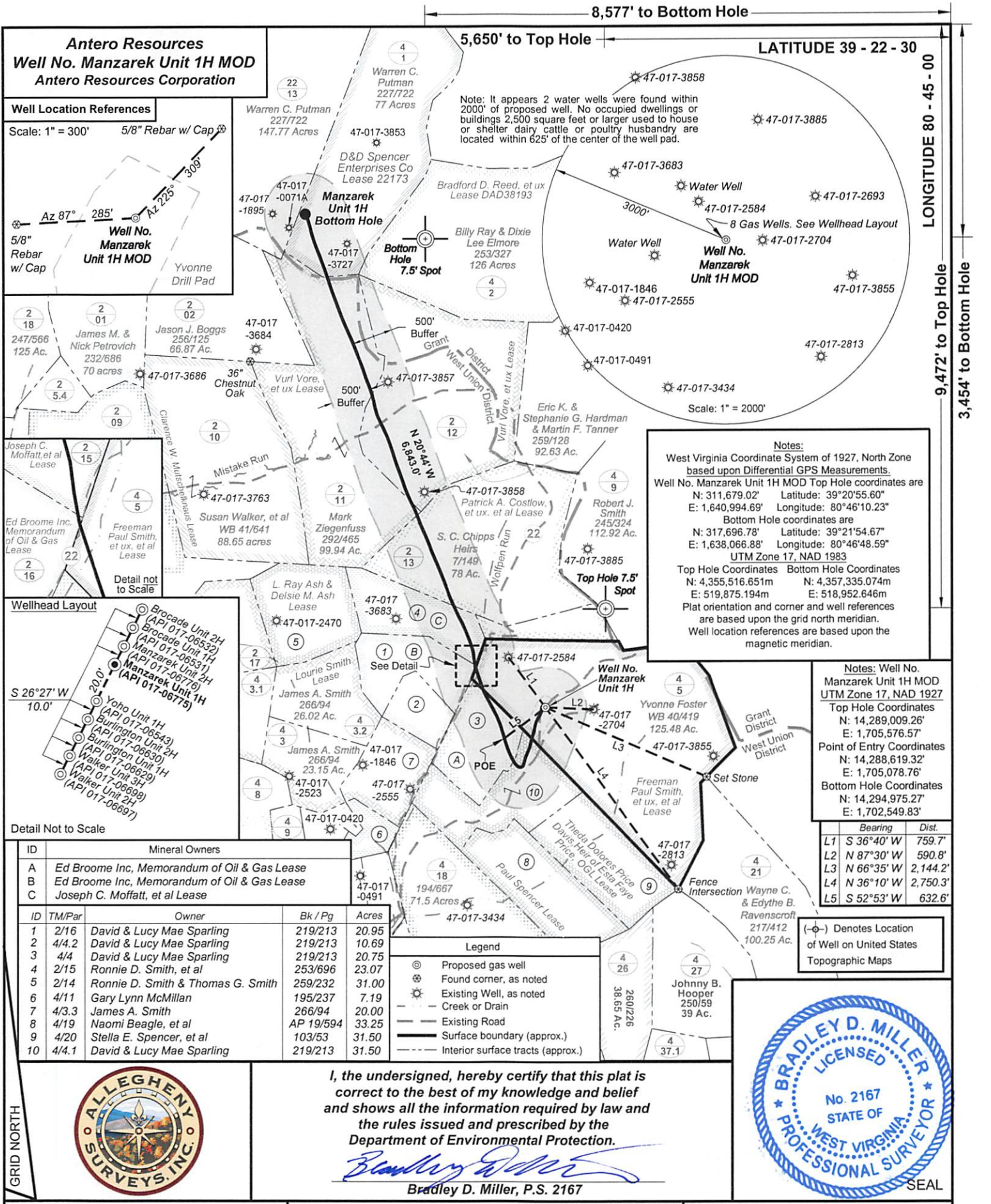
WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF GAS) PRODUCTION: STORAGE DEEP SHALLOW

LOCATION: ELEVATION: 1229' WATERSHED: Headwaters Middle Island Creek QUADRANGLE: West Union
 DISTRICT: West Union COUNTY: Doddridge 06/29/2018

SURFACE OWNER: Yvonne Foster ACREAGE: 125.48
 ROYALTY OWNER: Freeman Paul Smith, et ux, et al; Joseph C. Moffatt, et al; Vurl Vore, et ux; LEASE NO: 22173 ACREAGE: 20.75; 125; 283;

PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) POE-MOD
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 14,020' MD

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



Antero Resources
Well No. Manzarek Unit 1H MOD
Antero Resources Corporation

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 Scale: 1" = 300' 5/8" Rebar w/ Cap

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 Detail Not to Scale

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 Walker Unit 2H (API 017-06697)

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 E: 1,705,078.76'
 Bottom Hole Coordinates
 N: 14,294,975.27'
 E: 1,702,549.83'

Bearing	Dist.
L1 S 36°40' W	759.7'
L2 N 87°30' W	590.8'
L3 N 66°35' W	2,144.2'
L4 N 36°10' W	2,750.3'
L5 S 52°53' W	632.6'

(⊙) Denotes Location of Well on United States Topographic Maps

Notes: Well No. Manzarek Unit 1H MOD UTM Zone 17, NAD 1927
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 E: 1,702,549.83'

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

Bradley D. Miller
Bradley D. Miller, P.S. 2167

BRADLEY D. MILLER
 LICENSED
 No. 2167
 STATE OF WEST VIRGINIA
 PROFESSIONAL SURVEYOR
 SEAL

FILE NO: 264-30(54)-M(G)-14
 DRAWING NO: Manzarek 1H POE-MOD Well Plat
 SCALE: 1" = 1500'
 MINIMUM DEGREE OF ACCURACY: Submeter
 PROVEN SOURCE OF ELEVATION: WVDOT, Harrisville, WV

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

DATE: May 24 20 18
 OPERATOR'S WELL NO. Manzarek Unit 1H
 API WELL NO. 47 - 017 - 06775 MOD
 STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
 LOCATION: ELEVATION: 1229' WATERSHED: Headwaters Middle Island Creek QUADRANGLE: West Union
 DISTRICT: West Union Theda Dolores Price Davis, Heir of Esta Faye Price, OGL; COUNTY: Doddridge 06/29/2018
 SURFACE OWNER: Yvonne Foster Patrick A. Costlow, et ux, et al; D&D Spencer Enterprises Co; ACREAGE: 125.48 30; 63.087; 78.973; 73; 23;
 ROYALTY OWNER: Freeman Paul Smith, et ux, et al; Joseph C. Moffatt, et al; Vurl Vore, et ux; LEASE NO: 22173 ACREAGE: 20.75; 125; 283;
 PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) POE-MOD 6,898' TVD
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 14,020' MD

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

47-017-06775 mod



June 19, 2018

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

West Virginia Department of Environmental Protection
Office of Oil and Gas
Attn: Ms. Laura Adkins
601 57th Street
Charleston, WV 25304

Ms. Laura Adkins:

Antero Resources Corporation (Antero) would like to submit the following permit modifications for one approved well on the existing Yvonne Pad. We are requesting change the point of entry which will change the horizontal leg length, Total Measured Depth, and Total Vertical Depth for the Manzarek Unit 1H (API# 47-017-06775).

Attached you will find the following documents:

- REVISED Form WW-6B, which shows the revised Horizontal Leg Length, Measured Depth, and Production Casing/Cement Program
- REVISED Form WW-6A1, which shows the new leases we will be drilling into
- REVISED Mylar Plat, which shows the new wellbore path.

If you have any questions please feel free to contact me at (303) 357-6820.

Thank you in advance for your consideration.

Sincerely,

A handwritten signature in blue ink, appearing to read "Karin Cox", is written over a light blue horizontal line.

Karin Cox
Permitting Agent
Antero Resources Corporation

RECEIVED
Office of Oil and Gas

JUN 21 2018

WV Department of
Environmental Protection

Enclosures

06/29/2018