



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, March 14, 2018
PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit Modification Approval for EDGAR UNIT 1H
47-017-06854-00-00

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: EDGAR UNIT 1H
Farm Name: MATTHEW W. ALEXANDER & LINDA MARIE M^W
U.S. WELL NUMBER: 47-017-06854-00-00
Horizontal 6A New Drill
Date Modification Issued: 03/14/2018

Promoting a healthy environment.

03/16/2018

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-Doddridge West Union West Union 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Edgar Unit 1H Well Pad Name: Alexander Pad

3) Farm Name/Surface Owner: Matthew W. Alexander & Linda Marie Muhly Public Road Access: CR 28 (Nutter Fork)

4) Elevation, current ground: ~1195' Elevation, proposed post-construction: 1181'

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: 7500' TVD, Anticipated Thickness- 60 feet, Associated Pressure- 3100#

8) Proposed Total Vertical Depth: 7500' TVD

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9) Formation at Total Vertical Depth: Marcellus

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10) Proposed Total Measured Depth: 17300' MD

WV Department of
Environmental Protection

11) Proposed Horizontal Leg Length: 9439'

12) Approximate Fresh Water Strata Depths: 292', 297', 455'

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

14) Approximate Saltwater Depths: 1319', 1896', 2061'

15) Approximate Coal Seam Depths: 677', 839'

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)

PERMIT MODIFICATION API# 47-017-06854

API NO. 47- 017 - 06854

OPERATOR WELL NO. Edgar Unit 1H

Well Pad Name: Alexander Pad

18)

CASING AND TUBING PROGRAM

TYPE	<u>Size (in)</u>	<u>New or Used</u>	<u>Grade</u>	<u>Weight per ft. (lb/ft)</u>	<u>FOOTAGE: For Drilling (ft)</u>	<u>INTERVALS: Left in Well (ft)</u>	<u>CEMENT: Fill-up (Cu. Ft.)/CTS</u>
Conductor	20"	New	H-40	94#	80'	80'	CTS, 77 Cu. Ft.
Fresh Water	13-3/8"	New	J-55	54.5#	505' *see #19	505' *see #19	CTS, 702 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#	17300'	17300'	4365 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#		7100'	
Liners							

TYPE	<u>Size (in)</u>	<u>Wellbore Diameter (in)</u>	<u>Wall Thickness (in)</u>	<u>Burst Pressure (psi)</u>	<u>Anticipated Max. Internal Pressure (psi)</u>	<u>Cement Type</u>	<u>Cement Yield (cu. ft./k)</u>
Conductor	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	2500	LEGS-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# 47-017-06854
API NO. 47- 017 - 06854
OPERATOR WELL NO. Edgar Unit 1H
Well Pad Name: Alexander 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): 24.40 acres

22) Area to be disturbed for well pad only, less access road (acres): 6.10 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

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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.

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>Larry Williams Lease</u>			
Larry Williams	Antero Resources Appalachian Corporation	1/8+	0267/0352
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Charles Williams by Randy Williams, A.I.F. Lease</u>			
Charles Williams by Randy Williams, A.I.F.	Drilling Appalachian Corporation	1/8	LB0181/0615
Drilling Appalachian Corporation	Antero Resources Appalachian Corporation	Assignment	LB0262/0600
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Joseph Freeman, et ux Lease</u>			
Joseph Freeman, et ux	G.H Trainer and J.E Trainer	1/8	0027/0233
G.H Trainer & J.E Trainer	W.W Hepburn	Assignment	0034/0244
W.W Hepburn	Eastern Petroleum Company	Assignment	0034/0256
Eastern Petroleum Company	Clifton Oil & Gas Company	Assignment	0041/0431
Clifton Oil & Gas Company	Quaker State Refining Corporation	Assignment	0056/0165
Quaker State Refining Corporation	QSE&P, Inc	Assignment	0159/0474
QSE&P, Inc	The Quaker State 1989-1 Drilling Fund, L.P.	Assignment	0160/0200
The Quaker State 1989-1 Drilling	Belden & Blake Corporation	Assignment	0175/0466
Belden & Blake Corporation	Peake Energy, Inc.	Assignment	0181/0567
Peake Energy, Inc	North Coast Energy Eastern, Inc	Name Change	DB 0249/0343
North Coast Energy Eastern, Inc	Exco- North Coast Energy Eastern, Inc	Name Change	DB 0277/0068
EXCO-North Coast Energy Eastern Inc	Exco Resources WV Inc	Name Change	Exhibit 2
Exco Resources WV Inc	EXCO Production Company WV LLC	Merger	0285/0083
EXCO Production Company WV LLC	Antero Resources Appalachian Corporation	Assignment	0285/0084
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	WVSOS
<u>H. Ross Swiger, et ux Lease</u>			
H. Ross Swiger, et ux	Honor Resources Company	1/8	LB0295/0480
Honor Resources Company	Exco Production Company, LLC; B.G. Production Company, L.L.C.; Exco Resources, LLC	Assignment	LB0299/0659
Exco Production Company, LLC; B.G. Production Company, L.L.C.; Exco Resources, LLC	Antero Resources Appalachian Corporation	Assignment	LB0301/0551
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Joseph R. Corathers, et ux Lease</u>			
Joseph R. Corathers, et ux	Clarence W. Mutschelknaus	1/8	LB0158/0650
Clarence W. Mutschelknaus, Jr.; Helen Suzanne Osborne	Antero Resources Corporation	Assignment	LB0321/0604
<u>Delbert Ray Ash Lease</u>			
Delbert Ray Ash	Antero Resources Appalachian Corporation	1/8+	LB0299/0001
<u>Gary Lynn McMillan & Pamela S. McMillan Lease</u>			
Gary Lynn McMillan & Pamela S. McMillan	Antero Resources Corporation	1/8+	375/288

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

INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE
Chapter 22, Article 6A, Section 5(a)(5)
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Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<u>Lourie Smith Lease</u>			
Lourie Smith	Acme Oil Company	1/8	LB0105/0528
Acme Oil Company	S&K Land Company	Assignment	LB0106/775
S&K Land Company	United Energy Associates	*Partial Assignment	LB0113/0001
United Energy Associates, by J.W. Perrill, special commissioner	Gene Stalnaker, Inc.	Assignment	LB0159/0392
Gene Stalnaker, Inc.	Angus Energy, Inc	Assignment	LB0166/0372
Angus Energy, Inc	Stalnaker Energy Corporation	Assignment	LB0187/0558
Stalnaker Energy Corporation	Antero Resources Corporation	Assignment	LB 052/0194
<u>L. Ray Ash & Delsie M. Ash Lease</u>			
L. Ray Ash & Delsie M. Ash	J&J Enterprises	1/8	LB0112/0690
J&J Enterprises	Eastern American Energy Co.	Assignment	LB0159/0139
Eastern American Energy Co.	Energy Corporation of America	Merger	DB0283/0431
Energy Corporation of America	Antero Resources Appalachian Company	Assignment	LB0272/0307
Antero Resources Appalachian Company	Antero Resources Corporation	Name Change	Exhibit 1
<u>Pauline Arndt, et vir Lease</u>			
Pauline Arndt, et vir	Key Oil Company	1/8	LB0109/0562
Key Oil Company	J&J Enterprises	Assignment	LB0111/0326
J&J Enterprises	Eastern American Energy Co.	Assignment	LB0159/0139
Eastern American Energy Co.	Energy Corporation of America	Merger	DB0283/0431
Energy Corporation of America	Antero Resources Appalachian Corporation	Assignment	LB0272/0307
Antero Resources Appalachian Company	Antero Resources Corporation	Name Change	Exhibit 1
<u>Clarence W. Mutschelknaus Lease</u>			
Clarence W. Mutschelknaus	Antero Resources Corporation	1/8+	0361/0607
<u>Edwin P. & Dorothy P. Bode Lease</u>			
Edwin P. Bode, et al	Equitable Gas Company	1/8	0096/0401
Equitable Gas Company	EQT Production Company, LLC	Merger	0329/0645
EQT Production Company, LLC	Antero Resources Corporation	Notice of Agreement	0393/0722

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*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.

**CONTINUED ON NEXT PAGE

WW-6A1
(5/13)

Operator's Well No. Edgar 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)**

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- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
Wilbur F. Robinson, et ux Lease				
Wilbur F. Robinson		Stonewall Gas Co.	1/8	0152/0079
Stonewall Gas Co.		Dominion Appalachian Development Properties, Inc.	Merger	Exhibit 3
Dominion Appalachian Development Properties, Inc.		Consol Gas Appalachian Development Properties, LLC	Name Change	0181/0667
Consol Gas Appalachian Development Properties, LLC		CNX Gas Company, LLC	Name Change	Exhibit 4
CNX Gas Company, LLC, et al		Antero Resources Corporation	Assignment	0317/0379

*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:

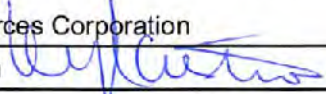
- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

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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: Kevin Kilstrom 
 Its: Senior Vice President - Production

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



IN THE OFFICE OF
PENNEY BARKER, Manager
Corporations Division
Tel: (304)558-8000
Fax: (304)558-8381

Website: www.wvgsos.com
E-mail: business@wvgsos.com

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

APPLICATION FOR
AMENDED CERTIFICATE
OF AUTHORITY

**** 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 statements:

- 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.)

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

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

Print Name of Signer: Alvyn A. Schopp Title/Capacity: Authorized Person
Signature: [Handwritten Signature] Date: June 10, 2013

*Important Legal Notice Regarding Signature: For 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.



Certificate

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

an Amended Certificate of Authority of

EXCO - NORTH COAST ENERGY EASTERN, INC.

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

Therefore I issue this

CERTIFICATE OF AMENDMENT TO THE CERTIFICATE OF AUTHORITY

changing the name of the corporation to

EXCO RESOURCES (WV), INC.

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DEC 4 2017
WV Department of
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*Given under my hand and the
Great Seal of the State of
West Virginia on this day of
December 2, 2009*

Natalie E. Tennant

Secretary of State

**FORM WW-6A1
EXHIBIT 3**

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

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

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

ARTICLE I

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

ARTICLE II

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

ARTICLE III

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

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ARTICLE IV

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

WV Department of
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State of West Virginia



Certificate

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

by the provisions of the West Virginia Code, Articles of Merger were received and filed,
MERGING CONSOL GAS COMPANY, A QUALIFIED DE ORGANIZATION, WITH AND INTO CNX GAS COMPANY LLC, A
QUALIFIED VA ORGANIZATION.

Therefore, I hereby issue this

CERTIFICATE OF MERGER

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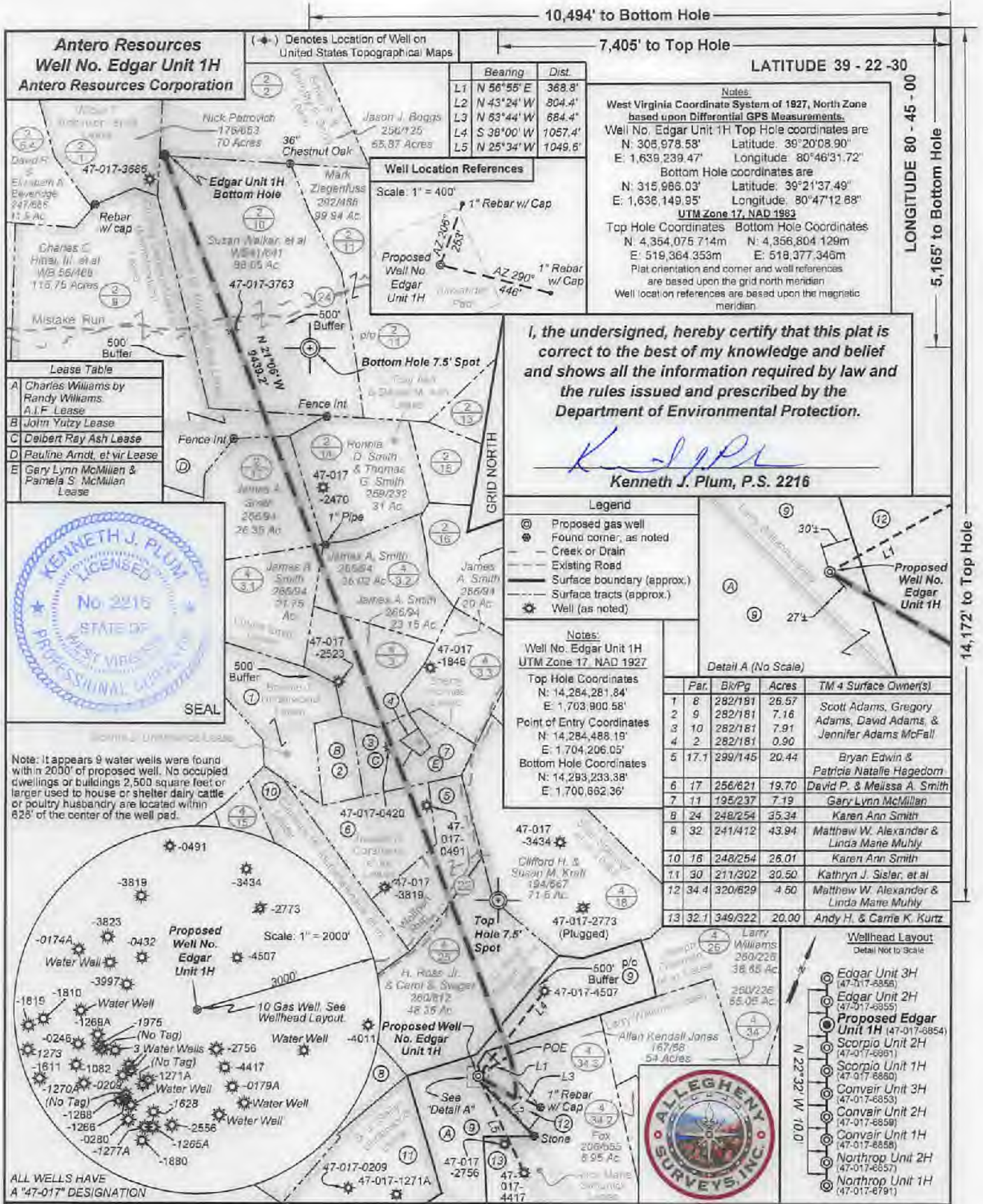
WV Department of
Environmental Protection



*Given under my hand and the
Great Seal of the State of
West Virginia on this day of
January 5, 2011*

Natalie E. Tennant

Secretary of State



Lease Table

A	Charles Williams by Randy Williams, A.I.F. Lease
B	John Yuzy Lease
C	Delbert Ray Ash Lease
D	Pauline Arndt, et vir Lease
E	Gary Lynn McMillan & Pamela S. McMillan Lease

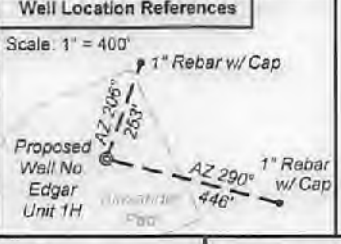


Note: It appears 9 water wells were found within a 2000' of proposed well. No occupied dwellings or buildings 2,500 square feet or larger used to house or shelter dairy cattle or poultry husbandry are located within 825' of the center of the well pad.



Well Location References

Bearing	Dist.
L1 N 56°55' E	368.8'
L2 N 43°24' W	804.4'
L3 N 63°44' W	684.4'
L4 S 38°00' W	1057.4'
L5 N 25°34' W	1049.6'



Notes:
 West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.
 Well No. Edgar Unit 1H Top Hole coordinates are
 N: 308,978.58' Latitude: 39°20'08.90"
 E: 1,639,239.47' Longitude: 80°46'31.72"
 Bottom Hole coordinates are
 N: 315,986.03' Latitude: 39°21'37.49"
 E: 1,636,149.95' Longitude: 80°47'12.68"
UTM Zone 17, NAD 1983
 Top Hole Coordinates Bottom Hole Coordinates
 N: 4,354,075.714m N: 4,356,804.129m
 E: 519,364.353m E: 518,377.346m
 Plat orientation and corner and well references are based upon the grid north meridian
 Well location references are based upon the magnetic meridian

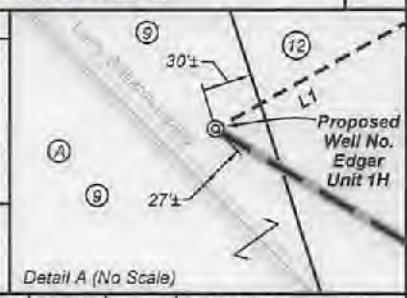
I, the undersigned, hereby certify that this plat is correct to the best of my knowledge and belief and shows all the information required by law and the rules issued and prescribed by the Department of Environmental Protection.

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

Legend

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

Notes:
 Well No. Edgar Unit 1H UTM Zone 17, NAD 1927
 Top Hole Coordinates
 N: 14,284,281.84'
 E: 1,703,900.58'
 Point of Entry Coordinates
 N: 14,284,488.19'
 E: 1,704,206.05'
 Bottom Hole Coordinates
 N: 14,293,233.38'
 E: 1,700,862.36'



Detail A (No Scale)

Par.	Blk/Pg	Acres	TM 4 Surface Owner(s)
1	8	282/181	26.57
2	9	282/181	7.16
3	10	282/181	7.91
4	2	282/181	0.90
5	17.1	299/145	20.44
6	17	256/621	19.70
7	11	195/237	7.19
8	24	248/254	35.34
9	32	241/412	43.94
10	16	248/254	26.01
11	30	211/302	30.50
12	34.4	320/629	4.60
13	32.1	349/322	20.00



FILE NO: 40-30-WU-14
 DRAWING NO: Edgar 1H Well Plat 11-16
 SCALE: 1" = 1200'
 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: November 15, 20 17
 Operator's Well No. Edgar Unit 1H
 API WELL NO
 47 - 017 - 6854
 STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
 Edwin P. & Dorothy P. Bode
 LOCATION: ELEVATION: Existing Grade - 1202 Proposed Grade - 1181' WATERSHED: Headwaters Middle Island Creek QUADRANGLE: West Union
 DISTRICT: West Union COUNTY: Doddridge
 SURFACE OWNER: Matthew W. Alexander & Linda Marie Muhly Clarence W. Mutschelknaus, Edwin P. & Dorothy P. Bode, Delbert Ray Ash, Pauline Arndt, et vir, Joseph R. Corathers, et ux, Gary Lynn McMillan & Pamela S. McMillan ACREAGE: 43.94, 66.31, 115.60
 ROYALTY OWNER: H. Ross Swiger, et ux, Joseph Freeman, et ux, Larry Williams, Lourie Smith LEASE NO: ACREAGE: 59, 7.91, 428.51
 PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) Modification - BTM Hole Location
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 7,500' TVD, 17,300' MD

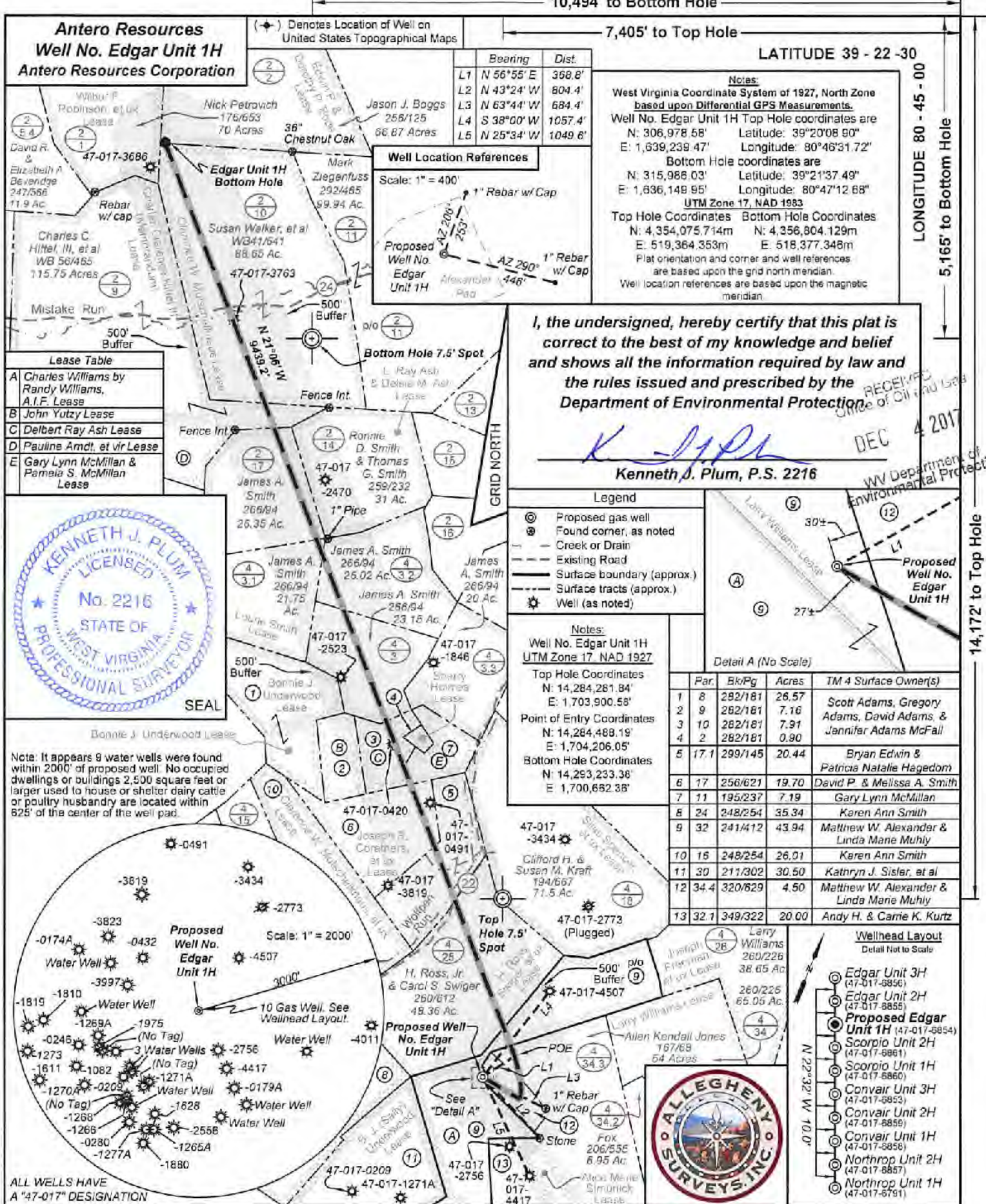
WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Dianna Stamper - CT Corporation System
 ADDRESS: 1616 Wynkoop Street ADDRESS: 5400 D Big Tyler Road
 Denver, CO 80202 Charleston, WV 25313

10,494' to Bottom Hole

7,405' to Top Hole

LATITUDE 39 - 22 - 30

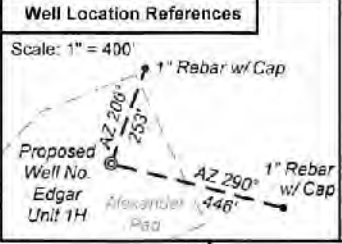
LONGITUDE 80 - 45 - 00



Antero Resources
Well No. Edgar Unit 1H
Antero Resources Corporation

(*) Denotes Location of Well on United States Topographical Maps

Bearing	Dist.
L1 N 56°55' E	368.8'
L2 N 43°24' W	804.4'
L3 N 63°44' W	684.4'
L4 S 38°00' W	1057.4'
L5 N 25°34' W	1049.6'



Notes:
 West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.
 Well No. Edgar Unit 1H Top Hole coordinates are
 N: 306,978.58' Longitude: 39°20'08.90"
 E: 1,639,239.47' Longitude: 80°46'31.72"
 Bottom Hole coordinates are
 N: 315,986.03' Longitude: 39°21'37.49"
 E: 1,636,149.95' Longitude: 80°47'12.68"
 UTM Zone 17, NAD 1983
 Top Hole Coordinates Bottom Hole Coordinates
 N: 4,354,075.714m N: 4,356,804.129m
 E: 519,364.353m E: 518,377.348m
 Flat orientation and corner and well references are based upon the grid north meridian.
 Well location references are based upon the magnetic meridian.

Lease Table

A	Charles Williams by Randy Williams, A.I.F. Lease
B	John Yutzy Lease
C	Delbert Ray Ash Lease
D	Pauline Arndt, et vir Lease
E	Gary Lynn McMillan & Pamela S. McMillan Lease

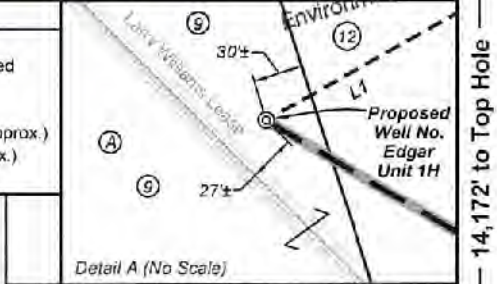


I, the undersigned, hereby certify that this plat is correct to the best of my knowledge and belief and shows all the information required by law and the rules issued and prescribed by the Department of Environmental Protection

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

Legend

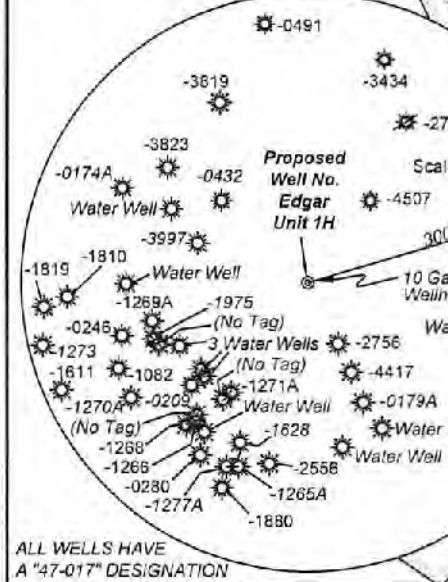
- Proposed gas well
- Found corner, as noted
- Creek or Drain
- Existing Road
- Surface boundary (approx.)
- Surface tracts (approx.)
- Well (as noted)



Notes:
 Well No. Edgar Unit 1H UTM Zone 17, NAD 1927
 Top Hole Coordinates
 N: 14,284,281.84' E: 1,703,900.58'
 Point of Entry Coordinates
 N: 14,284,488.19' E: 1,704,206.05'
 Bottom Hole Coordinates
 N: 14,293,233.38' E: 1,700,662.38'

Par.	Bk/Pg	Acres	TM 4 Surface Owner(s)	
1	8	292/181	26.57	Scott Adams, Gregory Adams, David Adams, & Jennifer Adams McFall
2	9	282/181	7.16	
3	10	282/181	7.91	
4	2	282/181	0.90	
5	17.1	299/145	20.44	Bryan Edwin & Patricia Natalie Hagedorn
6	17	256/621	19.70	David P. & Melissa A. Smith
7	11	195/237	7.19	Gary Lynn McMillan
8	24	248/254	35.34	Karen Ann Smith
9	32	241/412	43.94	Matthew W. Alexander & Linda Marie Muhly
10	15	248/254	26.01	Karen Ann Smith
11	30	211/302	30.50	Kathryn J. Sisler, et al
12	34.4	320/629	4.50	Matthew W. Alexander & Linda Marie Muhly
13	32.1	349/322	20.00	Andy H. & Carrie K. Kurtz

Note: It appears 9 water wells were found within 2000' of proposed well. No occupied dwellings or buildings 2,500 square feet or larger used to house or shelter dairy cattle or poultry husbandry are located within 825' of the center of the well pad.



ALL WELLS HAVE A "47-017" DESIGNATION

FILE NO: 40-30-WU-14
 DRAWING NO: Edgar 1H Well Plat 11-16
 SCALE: 1" = 1200'
 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: November 15, 20 17
 Operator's Well No. Edgar Unit 1H
 API WELL NO
47 - 017 - 6854
 STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
 LOCATION: ELEVATION: Existing Grace - 1202' Proposed Grade - 1181' WATERSHED: Headwaters Middle Island Creek QUADRANGLE: West Union
 DISTRICT: West Union COUNTY: Doddridge
 SURFACE OWNER: Matthew W. Alexander & Linda Marie Muhly Clarence W. Mutschelknaus; Edwin P. & Dorothy P. Bode; Delbert Ray Ash; Pauline Arndt, et vir; Joseph R. Corathers, et ux; Gary Lynn McMillan & Pamela S. McMillan ACREAGE: 43.94 7.19; 48.35
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03/16/2018