

12/14/2018



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

Monday, December 10, 2018
PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET
DENVER, CO 80202

Re: Permit Modification Approval for KELLER UNIT 2H
47-095-02521-00-00

Extend lateral to 18401' from 11618'

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.

A blue ink signature of James A. Martin, Chief, is written over a faint, larger version of the signature.

James A. Martin
Chief

Operator's Well Number: KELLER UNIT 2H
Farm Name: JOHN E. ROBERTS
U.S. WELL NUMBER: 47-095-02521-00-00
Horizontal 6A New Drill
Date Modification Issued: 12/10/2018

Promoting a healthy environment.

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

1) Well Operator: Antero Resources Corporation 494507062 095 - Tyler Ellsworth Paden City 7.5'
Operator ID County District Quadrangle

2) Operator's Well Number: Keller Unit 2H Well Pad Name: Reel Pad

3) Farm Name/Surface Owner: John E. Roberts Public Road Access: CR 11/6 (Elk Fork Rd)

4) Elevation, current ground: 853' Elevation, proposed post-construction: ~850'

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: 6600' TVD, Anticipated Thickness- 55 feet, Associated Pressure- 2850#

8) Proposed Total Vertical Depth: 6600' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 26340' MD

11) Proposed Horizontal Leg Length: 18401'

12) Approximate Fresh Water Strata Depths: 38'

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

14) Approximate Saltwater Depths: 1427', 1494', 1827'

15) Approximate Coal Seam Depths: 87'

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: _____

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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#	120	120	CTS, 115 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#	26340	26340	6835 Cu. Ft.
Tubing	2-3/8"	New	N-80	4.7#			
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	Lead-H/POZ & Tail - H	H/POZ-1.44 & H-1.8
Tubing	2-3/8"	4.778"	0.19"	11,200			
Liners							

PACKERS

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

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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): 38.92 acres

22) Area to be disturbed for well pad only, less access road (acres): 8.55 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:

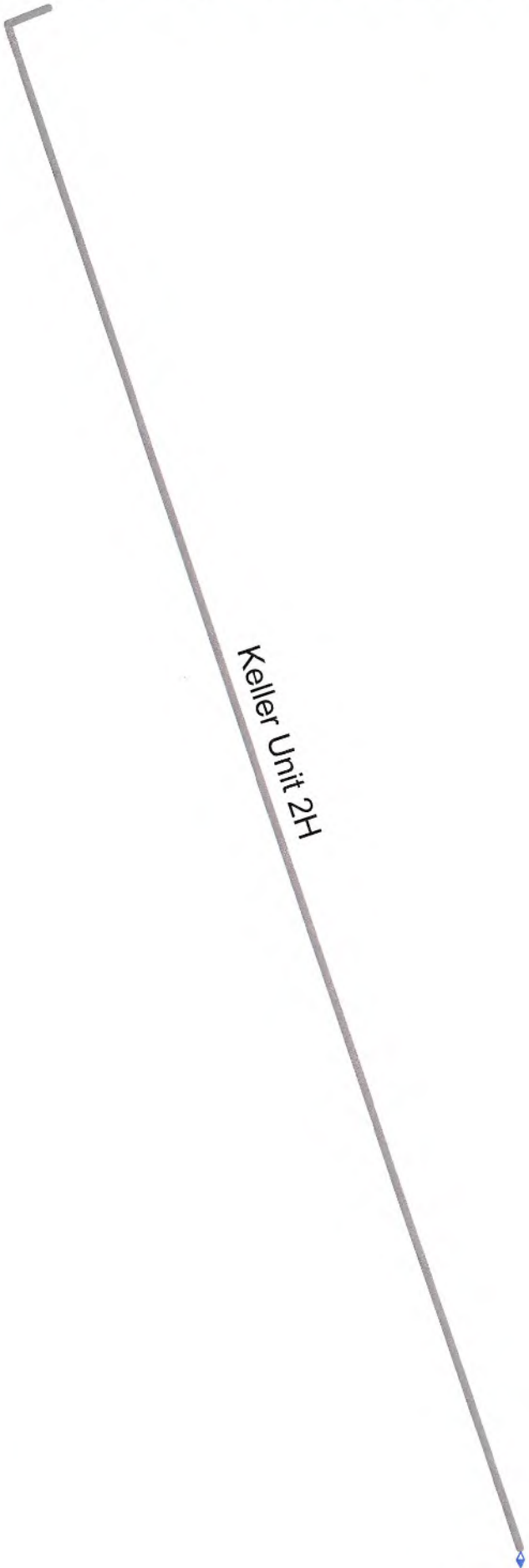
Conductor: no additives, Class A cement.
Surface: Class A cement with 2-3% calcium chloride and 1/4 lb of flake
Intermediate: Class A cement with 1/4 lb of flake, 5 gallons of clay treat
Production: Lead cement- 50/50 Class H/Poz + 1.5% salt + 1% C-45 + 0.5% C-16a + 0.2% C-12 + 0.45% C-20 + 0.05% C-51
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.



Keller Unit 2H

47095023250000

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Antero Resources Corporation

Keller Unit 2H - AOR



WELL SYMBOLS
Waiting on Completion

June 18, 2018

UWI (APINum)	Well Name	Well Number	Operator	Hist Oper	TD	Perforated Interval (shallowest, deepest)	Perforated Formation(s)	Productible Formation(s) not perf'd
47095023250000	GOODFELLOW UNIT	2H	ANTERO RESOURCES CORPORATION		14,407	6482 - 14302	Marcellus	

WW-6A1
(5/13)

Operator's Well No. Keller Unit 2H

**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>Cliff & Virginia Perkins Irrevocable Trust Lease</u>	Cliff and Virginia Perkins Irrevocable Trust	Antero Resources Corporation	1/8+	0480/0714

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

**Acknowledgement of Possible Permitting/Approval
In Addition to the Office of Oil and Gas**

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

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

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

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

WW-6A1

Operator's Well Number

Keller Unit 2H

Permit Modification API# 47-095-02521

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Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<u>John E. Roberts Lease (TM 10 PCL 64)</u>			
John E. Roberts	Stone Energy Corporation	1/8+	0402/0266
Stone Energy Corporation	Antero Resources Corporation	Assignment	0447/0115
<u>John E. Roberts Lease (TM 10 PCL 28)</u>			
John E. Roberts	Stone Energy Corporation	1/8+	0410/0522
Stone Energy Corporation	Antero Resources Corporation	Assignment	0442/0037
<u>Rosemary Smith Haught Lease (TM 10 PCL 27)</u>			
Rosemary Smith Haught	Antero Resources Corporation	1/8+	0585/0529
<u>Charles F. Eddy Lease</u>			
Charles F. Eddy	Antero Resources Corporation	1/8+	0585/0529
<u>Rosemary Haught Lease</u>			
Rosemary Haught	Antero Resources Corporation	1/8+	0459/0179
<u>Susan Townsend or James W. Thomas Lease</u>			
Susan Townsend or James W. Thomas	Antero Resources Appalachian Corporation	1/8+	0418/0390
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
<u>Piney Holdings, Inc. Lease</u>			
Piney Holdings, Inc	Antero Resources Corporation	1/8	0620/0173
<u>Gina Pastors fka Gina Dotson Lease</u>			
Gina Pastors fka Gina Dotson	Antero Resources Appalachian Corporation	1/8+	0434/0358
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1

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WV Department of
Environmental Protection

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

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

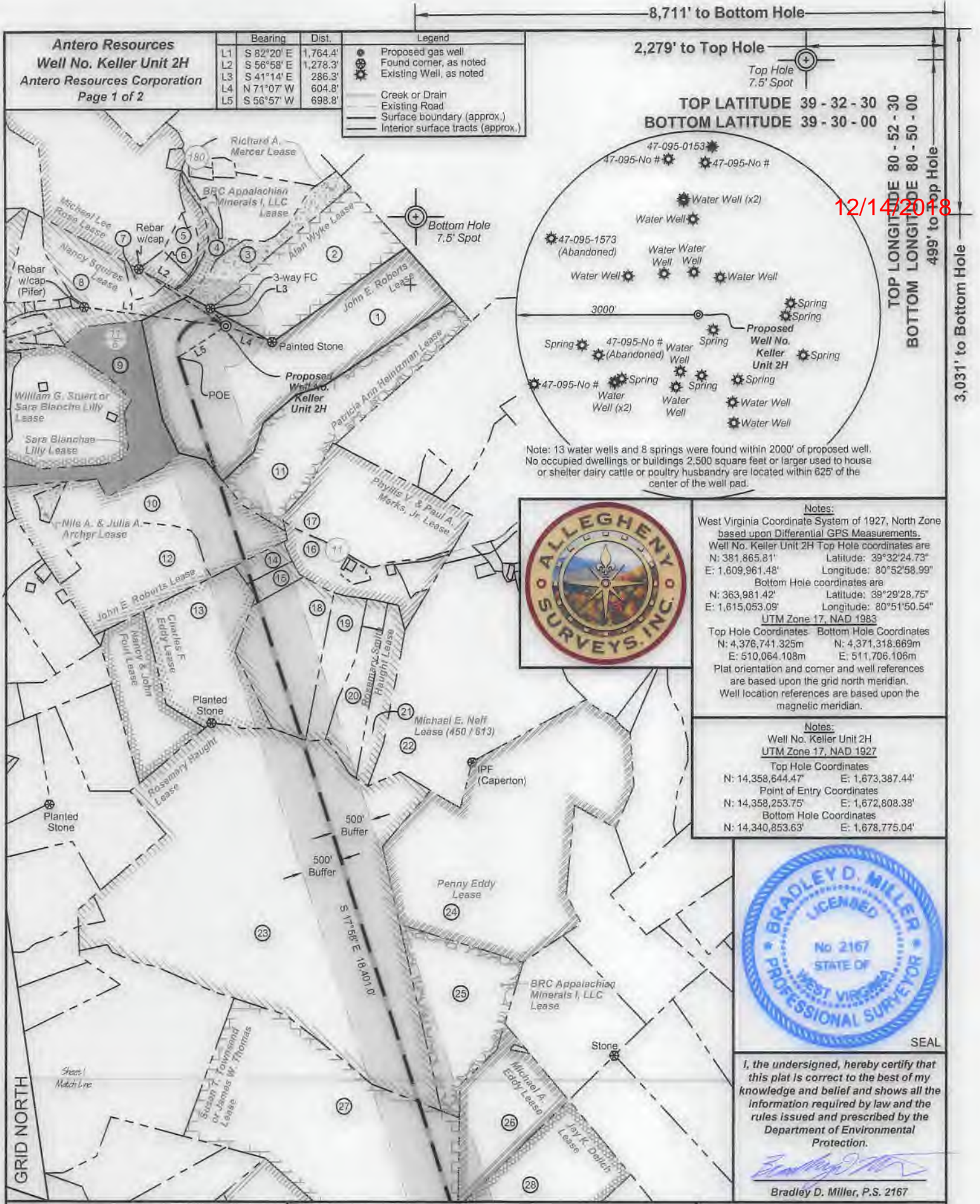
APPLICATION FOR
AMENDED CERTIFICATE
OF AUTHORITY

**** 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 statement:

- Name under which the corporation was authorized to transact business in WV: Antero Resources Appalachian Corporation
- Date Certificate of Authority was issued in West Virginia: 6/26/2008
- Corporate name has been changed to: Antero Resources Corporation
(Attach one Certified Copy of Name Change as filed in home State of incorporation.)
- Name the corporation elects to use in WV: Antero Resources Corporation
(due to home state name not being available)
- Other amendments: _____
(attach additional pages if necessary)
- Name and phone number of contact person. (This is optional, however, if there is a problem with the filing, listing a contact person and phone number may avoid having to return or reject the document.)
Alvyn A. Schopp (303) 357-7310
Contact Name Phone Number
- Signature information (See below *Important Legal Notice Regarding Signature*):
Print Name of Signer: Alvyn A. Schopp Title/Capacity: Authorized Person
Signature: [Handwritten Signature] Date: June 10, 2013

***Important Legal Notice Regarding Signature:** Per West Virginia Code §31D-1-129. Penalty for signing false documents. 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.

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Antero Resources
Well No. Keller Unit 2H
 Antero Resources Corporation
 Page 1 of 2

	Bearing	Dist.	Legend
L1	S 82°20' E	1,764.4'	Proposed gas well
L2	S 56°58' E	1,278.3'	Found corner, as noted
L3	S 41°14' E	286.3'	Existing Well, as noted
L4	N 71°07' W	604.8'	Creek or Drain
L5	S 56°57' W	698.8'	Existing Road
			Surface boundary (approx.)
			Interior surface tracts (approx.)

8,711' to Bottom Hole

2,279' to Top Hole

Top Hole 7.5' Spot

TOP LATITUDE 39 - 32 - 30
 BOTTOM LATITUDE 39 - 30 - 00

TOP LONGITUDE 80 - 52 - 30
 BOTTOM LONGITUDE 80 - 50 - 00

499' to Top Hole

3,031' to Bottom Hole

12/14/2018

Note: 13 water wells and 8 springs were found within 2000' of proposed well. No occupied dwellings or buildings 2,500 square feet or larger used to house or shelter dairy cattle or poultry husbandry are located within 625' of the center of the well pad.



Notes:
 West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.
 Well No. Keller Unit 2H Top Hole coordinates are
 N: 381,865.81' Latitude: 39°32'24.73"
 E: 1,609,961.48' Longitude: 80°52'58.99"
 Bottom Hole coordinates are
 N: 363,981.42' Latitude: 39°29'28.75"
 E: 1,615,053.09' Longitude: 80°51'50.54"
 UTM Zone 17, NAD 1983
 Top Hole Coordinates Bottom Hole Coordinates
 N: 4,376,741.325m N: 4,371,318.669m
 E: 510,064.108m E: 511,706.106m
 Plat orientation and corner and well references are based upon the grid north meridian.
 Well location references are based upon the magnetic meridian.

Notes:
 Well No. Keller Unit 2H
 UTM Zone 17, NAD 1927
 Top Hole Coordinates
 N: 14,358,644.47' E: 1,673,387.44'
 Point of Entry Coordinates
 N: 14,358,253.75' E: 1,672,808.38'
 Bottom Hole Coordinates
 N: 14,340,853.63' E: 1,678,775.04'



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: 35-54-E-16
 DRAWING NO: Keller 2H 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: October 12 2018
 OPERATOR'S WELL NO. Keller Unit 2H
 API WELL NO. MOD
 47 - 095 - 02521
 STATE COUNTY PERMIT

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

LOCATION: ELEVATION: Proposed 850' Existing 853' WATERSHED: Outlet Middle Island Creek QUADRANGLE: Shirley
 DISTRICT: Ellsworth COUNTY: Tyler
 SURFACE OWNER: John E. Roberts Gina Pastors fka Gina Dotson; Cliff & Virginia Perkins Irevocable Trust; Rosemary Haught; Alan Wyke; Piney Holdings, Inc.; Rosemary Smith Haught; ACREAGE: 100
 ROYALTY OWNER: John E. Roberts (2); Susan T. Townsend or James W. Thomas; Charles F. Eddy; LEASE NO: ACREAGE: 231.42344;
 PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) MOD BHL
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 26,340' MD 6,600' TVD

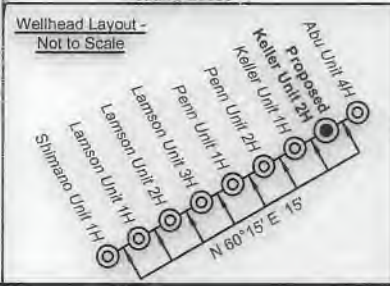
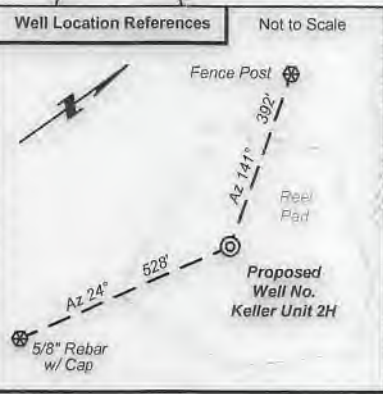
WELL OPERATOR: Antero Resources Corporation DESIGNATED AGENT: Dianna Stamper - CT Corporation System
 ADDRESS: 1615 Wynkoop Street ADDRESS: 5400 D Big Tyler Road
 Denver, CO 80202 Charleston, WV 25313



GRID NORTH

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

TM / Par	Owner	Bk / Pg	Acres
1	John E. Roberts	WB30 / 108	100.00
2	Alan D. Wyke	WB40 / 195	42.25
3	Richard A. Mercer	321 / 197	16.00
4	Richard Mercer	321 / 229	2.00
5	Shawna L. Staley & Steve Fletcher	402 / 286	4.286
6	Kevin R. & Laura Lee Roberts	347 / 746	3.243
7	Millie Conrad	322 / 54	2.78
8	Michael Scott & Joyce E. Mercer	321 / 216	28.94
9	John E. Roberts	185 / 263	22.67
10	John E. Roberts	WB30 / 142	38.99
11	Patricia Ann Heintzman	150 / 15	48.50
12	Paul William Kirk	355 / 551	38.008
13	Robert P. & Sharon L. Thomas	335 / 366	35.75
14	John E. Roberts	WB30 / 108	4.00
15	John E. Roberts	WB30 / 108	4.00
16	Ralph D. & Sylvia M. Harter	334 / 277	18.44
17	Michael V. & Debra K. Smith	335 / 619	59.42
18	Ralph D. & Sylvia M. Harter	286 / 73	38.80
19	Ralph D. & Sylvia M. Harter	311 / 200	15.00
20	Oliver T. & Maxine M. Ankrom	265 / 399	17.00
21	Oliver T. & Maxine M. Ankrom	265 / 399	11.00
22	Michael E. Neff	299 / 601	105.56
23	Haessley Land & Timber, LLC	334 / 833	268.91
24	Daniel R. Deetz & Kevin Richardson	321 / 713	131.94
25	Martin L. Blair, Jr. & Ronald K. Blair, Sr.	WB18 / 361	47.00
26	John W. Eddy, Estate	77 / 319	40.33
27	John D. Mendenhall & Jeffrey A. Davis	444 / 531	154.17
28	Robert M. Feldmeier	330 / 109	52.37
29	David Mendenhall, Gary Davis, and Timothy & Donna Aiken	288 / 662	85.71
30	David Mendenhall, Gary Davis, and Robert Feldmier Jr.	326 / 13	97.25
31	David Mendenhall, Gary Davis, and Robert Feldmier Jr.	289 / 4	50.00
32	Charles Loy, Jr., et al	358 / 610	20.00
33	Charles & Wilda Lee Fruner	300 / 342	97.50
34	Michael & Bente H. Biddle	294 / 537	223.77
35	Alfred B. & Elizabeth J. Biddle	319 / 408	6.582
36	Alfred B. & Elizabeth J. Biddle	319 / 408	1.062
37	Michael & Bente H. Biddle	294 / 537	82.34
38	Carl E. & Elsie M. Taylor	391 / 181	63.50
39	Ridgetop Capital II, LP	385 / 781	83.68
40	Tyler County Home	77 / 672	189.36
41	Charles O. Conaway	WB17 / 354	95.50
42	Ridgetop Capital II, LP	385 / 781	20.00



FILE NO: 35-54-E-16
DRAWING NO: Keller 2H 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: October 12 2018
OPERATOR'S WELL NO. Keller Unit 2H
API WELL NO. **M&D**
47 - 095 - 02521
STATE COUNTY PERMIT

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(IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
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ADDRESS: 1615 Wynkoop Street ADDRESS: 5400 D Big Tyler Road
Denver, CO 80202 Charleston, WV 25313

12/14/2018



October 17, 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 the approved well on the existing Reel Pad. We are requesting to extend the lateral lengths which will change the bottom hole location for the Keller Unit 2H (API# 47-095-02521)

Attached you will find the following documents:

- REVISED Form WW-6B, which shows the updated BHL and Measured Depth
- REVISED Form WW-6A1, which shows the new leases we will be drilling into
- REVISED Mylar Plat, which shows the new Lateral Length and Estimated Measured Depth
- As-Built Design

If you have any questions please feel free to contact me at (303) 357-7182.

Thank you in advance for your consideration.

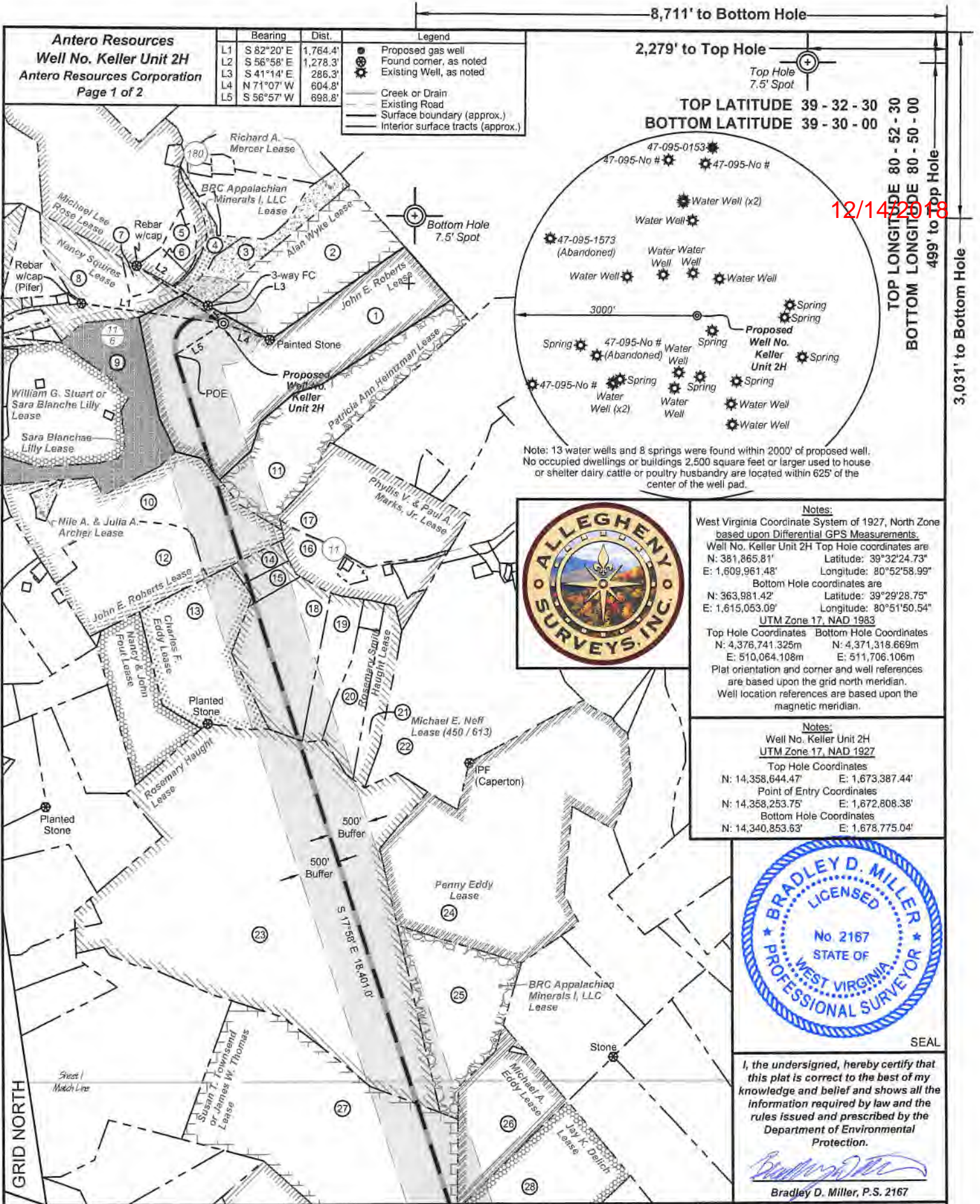
Sincerely,

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

Karin Cox
Permitting Supervisor
Antero Resources Corporation

Enclosures

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Office of Oil and Gas
OCT 18 2018
WV Department of
Environmental Protection



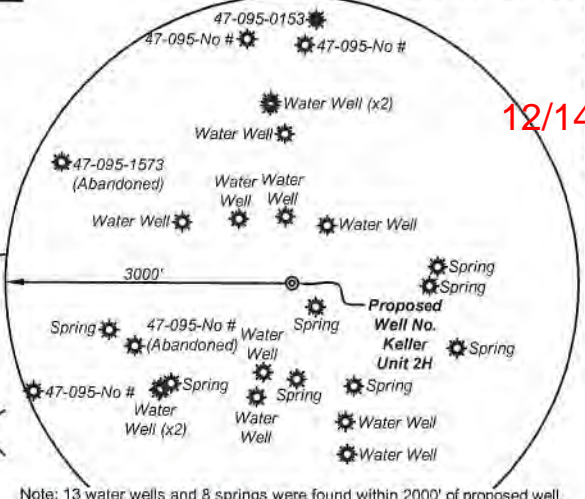
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BOTTOM LATITUDE 39 - 30 - 00

TOP LONGITUDE 80 - 52 - 30
BOTTOM LONGITUDE 80 - 50 - 00



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West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.
Well No. Keller Unit 2H Top Hole coordinates are
N: 381,865.81' Latitude: 39°32'24.73"
E: 1,609,961.48' Longitude: 80°52'58.99"
Bottom Hole coordinates are
N: 363,981.42' Latitude: 39°29'28.75"
E: 1,615,063.09' Longitude: 80°51'50.54"
UTM Zone 17, NAD 1983
Top Hole Coordinates Bottom Hole Coordinates
N: 4,376,741.325m N: 4,371,318.669m
E: 510,064.108m E: 511,706.106m
Plat orientation and corner and well references are based upon the grid north meridian.
Well location references are based upon the magnetic meridian.

Notes:
Well No. Keller Unit 2H
UTM Zone 17, NAD 1927
Top Hole Coordinates
N: 14,358,644.47' E: 1,673,387.44'
Point of Entry Coordinates
N: 14,358,253.75' E: 1,672,808.38'
Bottom Hole Coordinates
N: 14,340,853.63' E: 1,678,775.04'



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

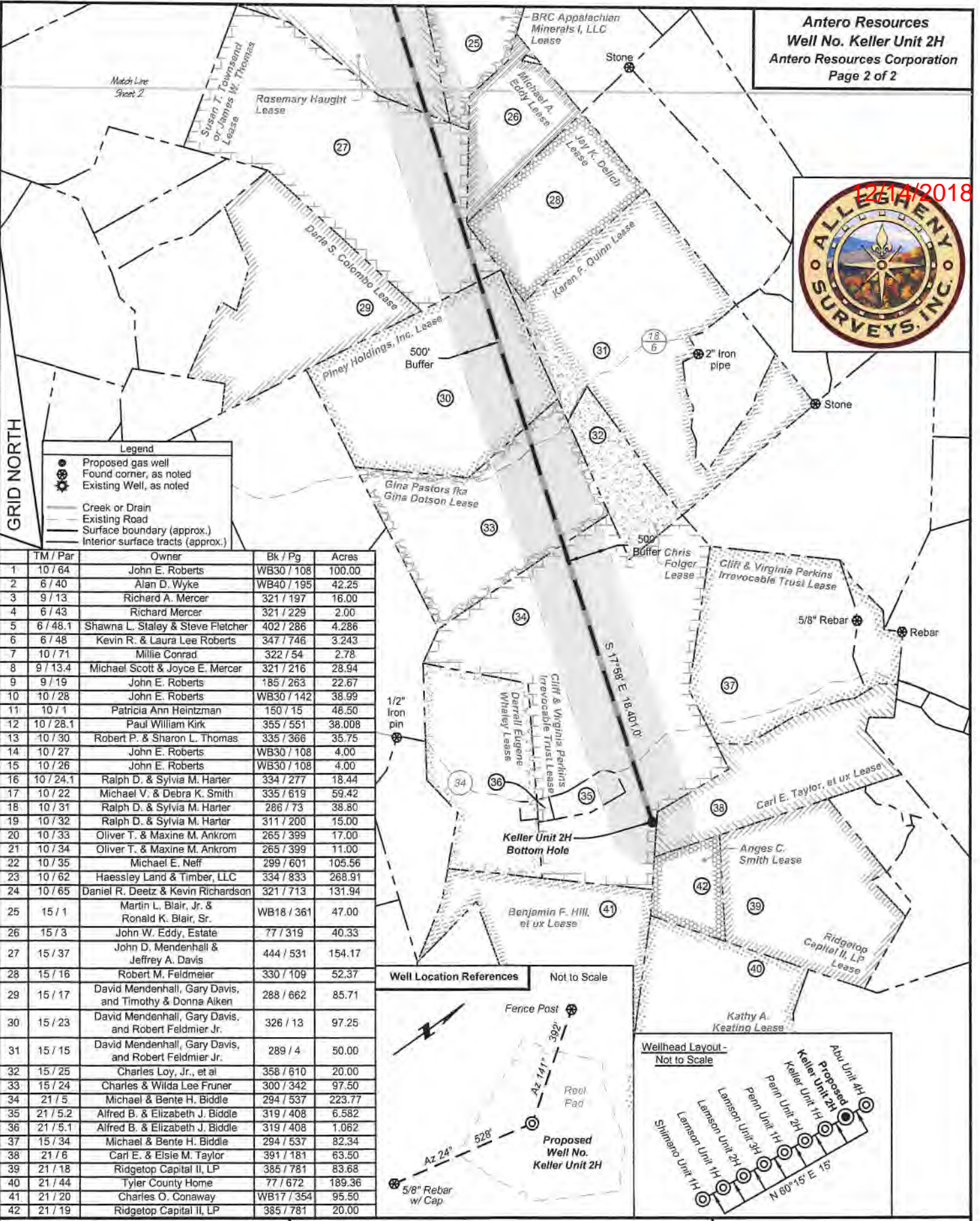
FILE NO: 35-54-E-16
DRAWING NO: Keller 2H Well Plat
SCALE: 1" = 1500'
MINIMUM DEGREE OF ACCURACY: Submeter
PROVEN SOURCE OF ELEVATION: WVDOT, Harrisville, WV

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

DATE: October 12 2018
OPERATOR'S WELL NO. Keller Unit 2H
API WELL NO
47 - 095 - 02521
STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
LOCATION: ELEVATION: Proposed 850' Existing 853' WATERSHED: Outlet Middle Island Creek QUADRANGLE: Shirley
DISTRICT: Ellsworth COUNTY: Tyler
SURFACE OWNER: John E. Roberts ACREAGE: 100
ROYALTY OWNER: John E. Roberts (2); Susan T. Townsend or James W. Thomas; Charles F. Eddy; LEASE NO: ACREAGE: 231.42344;
PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) MOD BHL 6,600' TVD
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 26,340' 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

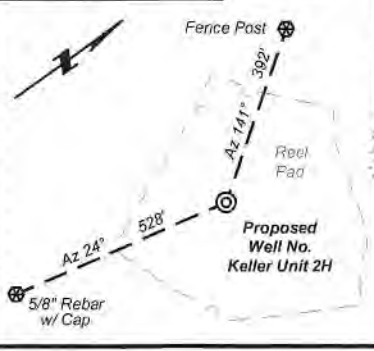


Legend

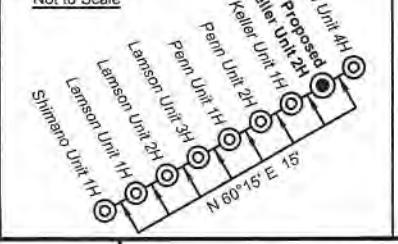
- Proposed gas well
- ⊙ Found corner, as noted
- ⊙ Existing Well, as noted
- Creek or Drain
- Existing Road
- Surface boundary (approx.)
- - - Interior surface tracts (approx.)

TM / Par	Owner	Bk / Pg	Acres
1 10 / 64	John E. Roberts	WB30 / 108	100.00
2 6 / 40	Alan D. Wyke	WB40 / 195	42.25
3 9 / 13	Richard A. Mercer	321 / 197	16.00
4 6 / 43	Richard Mercer	321 / 229	2.00
5 6 / 48.1	Shawna L. Staley & Steve Fletcher	402 / 286	4.286
6 6 / 48	Kevin R. & Laura Lee Roberts	347 / 746	3.243
7 10 / 71	Millie Conrad	322 / 54	2.78
8 9 / 13.4	Michael Scott & Joyce E. Mercer	321 / 216	28.94
9 9 / 19	John E. Roberts	185 / 263	22.67
10 10 / 28	John E. Roberts	WB30 / 142	38.99
11 10 / 1	Patricia Ann Heintzman	150 / 15	48.50
12 10 / 28.1	Paul William Kirk	355 / 551	38.008
13 10 / 30	Robert P. & Sharon L. Thomas	335 / 366	35.75
14 10 / 27	John E. Roberts	WB30 / 108	4.00
15 10 / 26	John E. Roberts	WB30 / 108	4.00
16 10 / 24.1	Ralph D. & Sylvia M. Harter	334 / 277	18.44
17 10 / 22	Michael V. & Debra K. Smith	335 / 619	59.42
18 10 / 31	Ralph D. & Sylvia M. Harter	286 / 73	38.80
19 10 / 32	Ralph D. & Sylvia M. Harter	311 / 200	15.00
20 10 / 33	Oliver T. & Maxine M. Ankrom	265 / 399	17.00
21 10 / 34	Oliver T. & Maxine M. Ankrom	265 / 399	11.00
22 10 / 35	Michael E. Neff	299 / 601	105.56
23 10 / 62	Haessley Land & Timber, LLC	334 / 833	268.91
24 10 / 65	Daniel R. Deetz & Kevin Richardson	321 / 713	131.94
25 15 / 1	Martin L. Blair, Jr. & Ronald K. Blair, Sr.	WB18 / 361	47.00
26 15 / 3	John W. Eddy, Estate	77 / 319	40.33
27 15 / 37	John D. Mendenhall & Jeffrey A. Davis	444 / 531	154.17
28 15 / 16	Robert M. Feldmeier	330 / 109	52.37
29 15 / 17	David Mendenhall, Gary Davis, and Timothy & Donna Aiken	288 / 662	85.71
30 15 / 23	David Mendenhall, Gary Davis, and Robert Feldmier Jr.	326 / 13	97.25
31 15 / 15	David Mendenhall, Gary Davis, and Robert Feldmier Jr.	289 / 4	50.00
32 15 / 25	Charles Loy, Jr., et al	358 / 610	20.00
33 15 / 24	Charles & Wilda Lee Fruner	300 / 342	97.50
34 21 / 5	Michael & Bente H. Biddle	294 / 537	223.77
35 21 / 5.2	Alfred B. & Elizabeth J. Biddle	319 / 408	6.582
36 21 / 5.1	Alfred B. & Elizabeth J. Biddle	319 / 408	1.062
37 15 / 34	Michael & Bente H. Biddle	294 / 537	82.34
38 21 / 6	Carl E. & Elsie M. Taylor	391 / 181	63.50
39 21 / 18	Ridgetop Capital II, LP	385 / 781	83.68
40 21 / 44	Tyler County Home	77 / 672	189.36
41 21 / 20	Charles O. Conaway	WB17 / 354	95.50
42 21 / 19	Ridgetop Capital II, LP	385 / 781	20.00

Well Location References Not to Scale



Wellhead Layout - Not to Scale



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