

06/14/2019



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

Thursday, June 13, 2019
PERMIT MODIFICATION APPROVAL
Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET

DENVER, CO 80202

Re: Permit Modification Approval for REMO UNIT 2H
47-095-02579-00-00

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

A handwritten signature in blue ink, appearing to read 'James A. Martin', is written over the printed name and title.

Operator's Well Number: REMO UNIT 2H
Farm Name: ANTERO MIDSTREAM LLC
U.S. WELL NUMBER: 47-095-02579-00-00
Horizontal 6A New Drill
Date Modification Issued: June 13, 2019

Promoting a healthy environment.

WW-6B
(04/15)

API NO. 47-095 - 02579 **06/14/2019**
 OPERATOR WELL NO. Remo Unit 2H
 Well Pad Name: Ferrell 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 095-Tyler Ellsworth Middlebourne 7.5'
 Operator ID County District Quadrangle

2) Operator's Well Number: Remo Unit 2H Well Pad Name: Ferrell Pad

3) Farm Name/Surface Owner: Antero Resources Midstream Public Road Access: CR 7

4) Elevation, current ground: 757' Elevation, proposed post-construction: _____

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: 6500' TVD, Anticipated Thickness- 55 feet, Associated Pressure- 2850#

8) Proposed Total Vertical Depth: 6500' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 21300' MD

11) Proposed Horizontal Leg Length: 13154'

12) Approximate Fresh Water Strata Depths: 194', 222', 243'

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

14) Approximate Saltwater Depths: 1224', 1347'

15) Approximate Coal Seam Depths: 770'

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- 095 - 02579 **06/14/2019**

OPERATOR WELL NO. Remo Unit 2H

Well Pad Name: Ferrell 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#	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#	21300	21300	CTS, 5449 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			

WW-6B
(10/14)

API NO. 47- 095 - 02579 **06/14/2019**

OPERATOR WELL NO. Remo Unit 2H

Well Pad Name: Ferrell 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): 38.20 acres

22) Area to be disturbed for well pad only, less access road (acres): 10.78 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-6A1

Operator's Well Number Remo 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:

Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
<u>Larry R. Henthorn et ux Lease</u> Larry R. Henthorn et ux	Antero Resources Corporation	1/8+	0579/0847
<u>Richard L. Clark Lease (TM 26 PCL 3)</u> Richard L. Clark	Antero Resources Corporation	1/8+	0583/0544
<u>Richard L. Clark Lease (TM 20 PCL 97)</u> Richard L. Clark	Antero Resources Corporation	1/8+	0408/0363
<u>John P.L. Hennessy Lease</u> John P.L. Hennessy Statoil USA Onshore Properties Inc Equinor USA Onshore Properties Inc	Statoil USA Onshore Properties Inc Equinor USA Onshore Properties Inc Antero Resources Corporation	1/8 Affidavit Agreement	0466/0364 0604/0703 0639/0687
<u>J. Howard & Teresa A. Hassig Lease</u> J. Howard & Teresa A. Hassig Chesapeake Appalachia LLC SWN Production Company LLC Antero Exchange Properties LLC	Chesapeake Appalachia LLC SWN Production Company LLC Antero Exchange Properties LLC Antero Resources Corporation	1/8 Assignment Assignment Merger	0368/0649 0465/0463 0544/0242 0552/0315
<u>WV Division of Natural Resources Lease</u> WV Division of Natural Resources	Antero Resources Corporation	1/8+	0619/0770
<u>Robert Earl Pitts Lease</u> Robert Earl Pitts Chesapeake Appalachia LLC Statoil USA Onshore Properties Inc Antero Exchange Properties LLC	Chesapeake Appalachia LLC Statoil USA Onshore Properties Inc Antero Exchange Properties LLC Antero Resources Corporation	1/8+ Assignment Assignment Name Change	0379/0356 0390/0056 0544/0291 0552/0315
<u>Hilda Steen Lease</u> Hilda Steen	Antero Resources Corporation	1/8+	0589/0333
<u>WV Division of Natural Resources Lease</u> WV Division of Natural Resources	Antero Resources Corporation	1/8+	0619/0770
<u>CHK-MAC LLC Lease</u> CHK-MAC LLC SWN Production Company Antero Exchange Properties	SWN Production Company Antero Exchange Properties Antero Resources Corporation	1/8 Assignment Name Change	0465/0481 0544/0242 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.

Operator's Well Number Remo Unit 2H

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Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
WV Division of Natural Resources Lease WV Division of Natural Resources	Antero Resources Corporation	1/8+	0619/0770
Richard Addy Scales Lease Richard Addy Scales	Antero Resources Corporation	1/8+	0413/0695
Richard J. Mathisen & Lisa M. Beane Lease Richard J. Mathisen & Lisa M. Beane	Antero Resources Corporation	1/8+	0558/0341

WW-6A1
(5/13)

Operator's Well No. Remo 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)**

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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
<u>Bounty Minerals Lease</u>	Bounty Minerals	Antero Resources Corporation	1/8	0623/0560

*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.

Well Operator: Antero Resources Corporation
 By: Kevin Kilstrom
 Its: Senior Vice President - Production

FORM WV-6A1
EXHIBIT 1

FILED

JUN 10 2013

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



IN THE OFFICE OF
SECRETARY OF STATE

Fenny Barber, Manager
Corporations Division
Tel: (304)558-8000
Fax: (304)558-8381
Website: www.wv.gov
E-mail: business@wv.gov

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

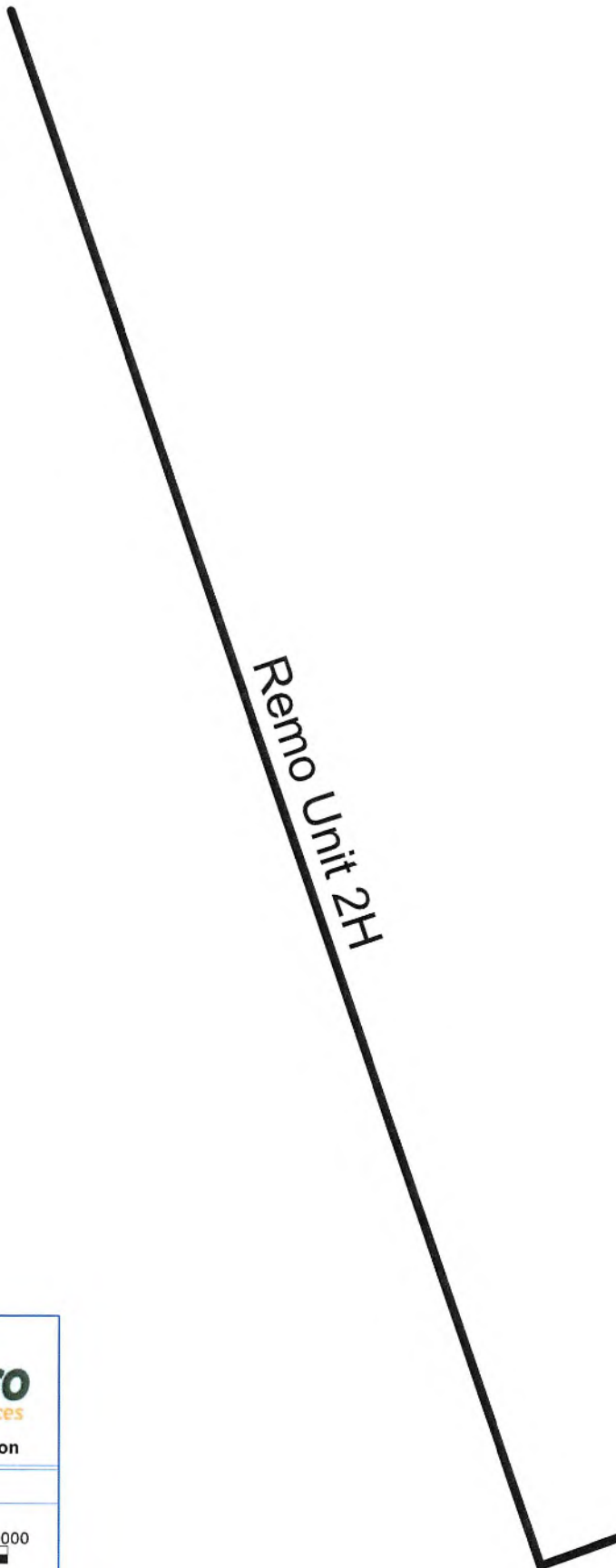
APPLICATION FOR
AMENDED CERTIFICATE
OF AUTHORITY

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

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

- Name under which the corporation was authorized to transact business in WV: Antero Resources Appalachia Corporation
- Date Certificate of Authority was issued in West Virginia: 6/25/2008
- 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.)
Alwyn A. Schopp (303) 357-7310
Contact Name Phone Number
- Signature information (See below **Important Legal Notice Regarding Signatures**):
Print Name of Signer: Alwyn A. Schopp Title/Capacity: Authorized Person
Signature: [Handwritten Signature] Date: June 10, 2013

Important Legal Notice Regarding Signatures For West Virginia Code §31D-1-12b. 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 Corporation

Remo Unit 2H



REMARKS
No Wells of Interest

October 18, 2018

**Antero Resources Well
No. Remo Unit 2H**

Antero Resources Corporation

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.

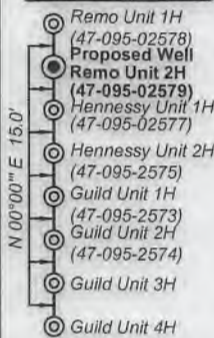
Bradley D. Miller

Bradley D. Miller, P.S. 2167



Note: 1 spring was 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. There were no gas wells found or documented within 3000' of the proposed well.

Wellhead Layout (NTS)



Notes:
Well No. Remo Unit 2H
UTM Zone 17, NAD 1927
Top Hole Coordinates
N: 14,333,953.69'
E: 1,663,420.21'
Point of Entry Coordinates
N: 14,334,198.63'
E: 1,662,557.69'
Bottom Hole Coordinates
N: 14,346,639.78'
E: 1,658,298.76'

Notes:

West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.
Well No. Remo Unit 2H Top Hole coordinates are
N: 357,336.47" Latitude: 39°28'20.71"
E: 1,599,579.92" Longitude: 80°55'06.55"
Bottom Hole coordinates are
N: 370,110.67" Latitude: 39°30'26.18"
E: 1,594,669.29" Longitude: 80°56'11.77"
UTM Zone 17, NAD 1983
Top Hole Coordinates Bottom Hole Coordinates
N: 4,369,215.434m N: 4,373,082.136m
E: 507,025.959m E: 505,464.968m
Plat orientation and corner and well references are based upon the grid north meridian.
Well location references are based upon the magnetic meridian.

FILE NO: 17-54-E-17
DRAWING NO: Remo 2H Well Plat
SCALE: 1" = 1500'
MINIMUM DEGREE OF ACCURACY: Submeter
PROVEN SOURCE OF ELEVATION: WV DOT, Harrisville, WV

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

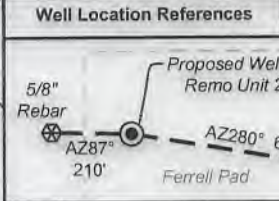
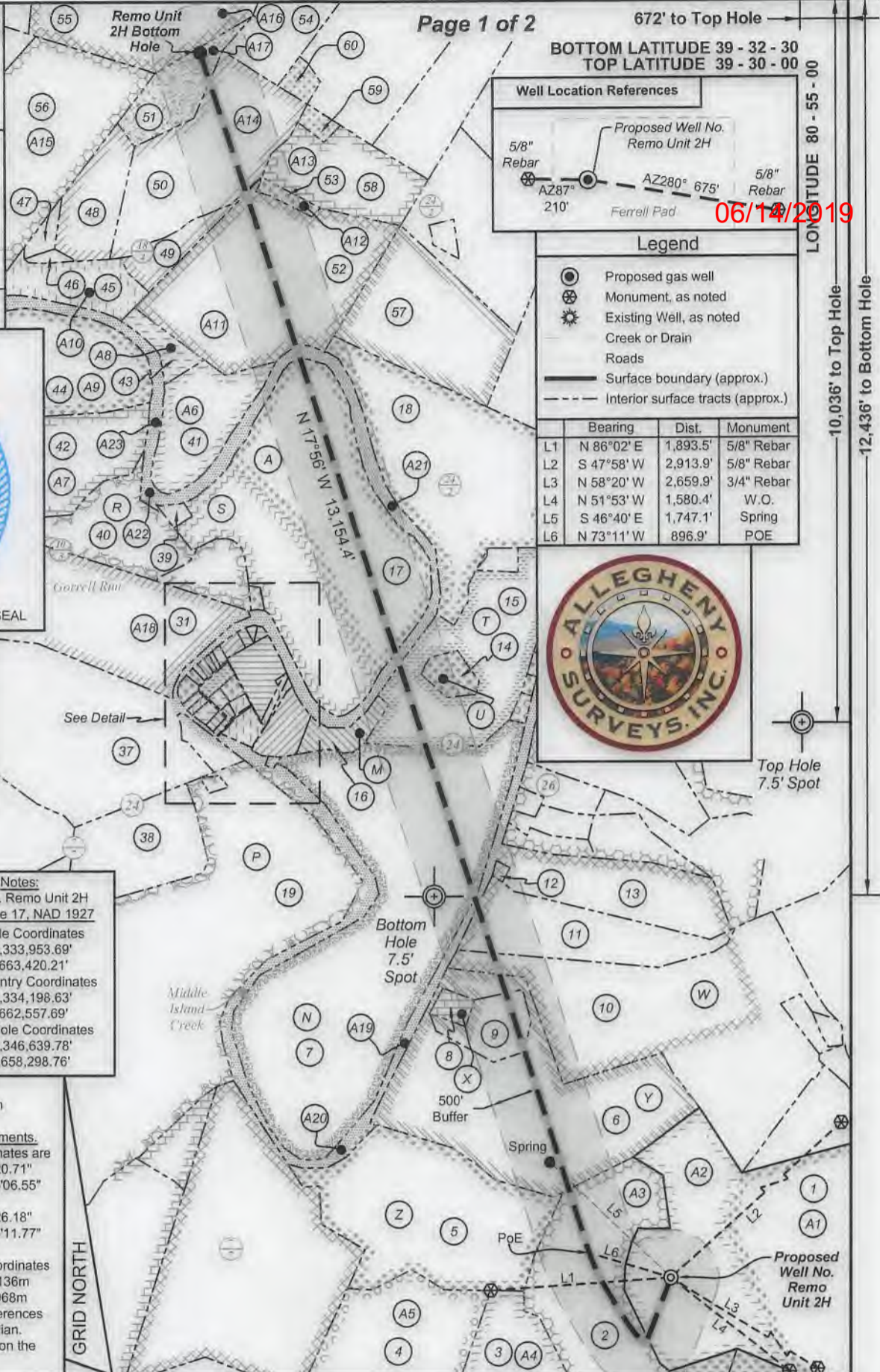
DATE: May 13 2019
OPERATOR'S WELL NO. Remo Unit 2H
API WELL NO
47 - 095 - 02579
STATE COUNTY PERMIT

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

LOCATION: ELEVATION: As-Built 757' WATERSHED: Outlet Middle Island Creek QUADRANGLE: Middlebourne 13.919; 22.3;
DISTRICT: Ellsworth Bounty Minerals, LLC; J. Howard Hassig & Teresa A. Hassig; Larry R. Henthorn, et ux; COUNTY: Tyler 15.9; 61.71875;
SURFACE OWNER: Antero Midstream LLC Richard J. Mathisen & Lisa M. Beane; John P.L. Hennessy; ACREAGE: 203.59 99.413; 63.02;
ROYALTY OWNER: West Virginia Division of Natural Resources (2); Richard L. Clark LEASE NO: ACREAGE: 70.89; 39.757;
70.509; 78;

PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) BHL Mod 6,500' TVD
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 21,300' 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
- Monument, as noted
- Existing Well, as noted
- Creek or Drain
- Roads
- Surface boundary (approx.)
- Interior surface tracts (approx.)

	Bearing	Dist.	Monument
L1	N 86°02' E	1,893.5'	5/8" Rebar
L2	S 47°58' W	2,913.9'	5/8" Rebar
L3	N 58°20' W	2,659.9'	3/4" Rebar
L4	N 51°53' W	1,580.4'	W.O.
L5	S 46°40' E	1,747.1'	Spring
L6	N 73°11' W	896.9'	POE



06/14/2019

LONGITUDE 80 - 55 - 00

10,036' to Top Hole

12,436' to Bottom Hole

5,822' to Bottom Hole
672' to Top Hole
BOTTOM LATITUDE 39 - 32 - 30
TOP LATITUDE 39 - 30 - 00

**Antero Resources Well
No. Remo Unit 2H**

Antero Resources Corporation

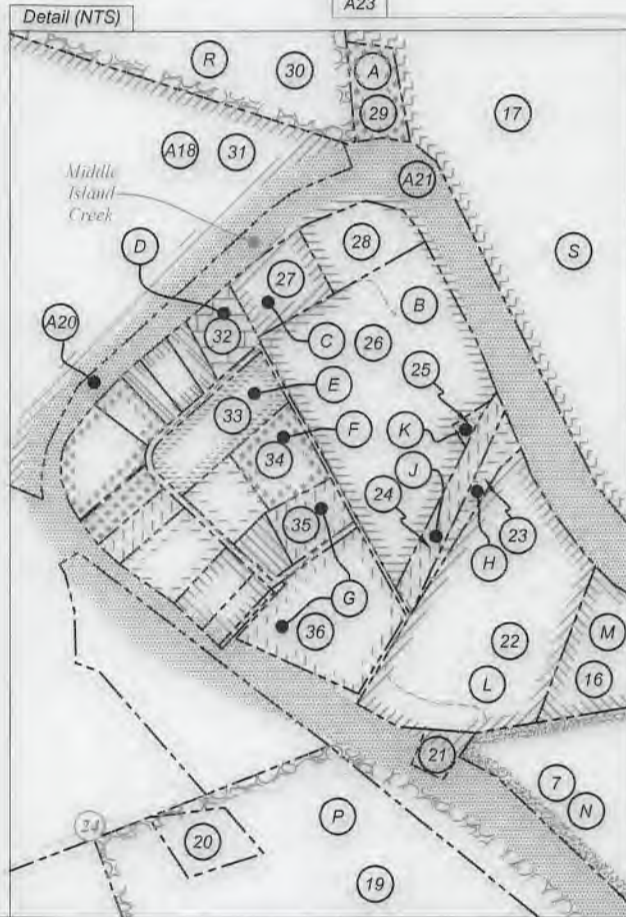


06/14/2019

No.	TM - Par.	Bk / Pg	Acres	Owner(s)
60	14 - 12	393 / 260	2.58	Lawrence Oraton Evens Jr.
59	14 - 28	393 / 260	2.00	Lawrence Oraton Evens Jr.
58	14 - 29	478 / 280	26.00	Boor Family Trust
57	14 - 37	447 / 112	41.90	Theresa L. Hutton
56	15 - 17	191 / 12	127.39	Earl & Donna Smith
55	13 - 1	330 / 931	150.00	James L. & Martha Jo Stewart
54	13 - 2	113 / 6	35.00	Lawrence Oraton Evens Jr.
53	13 - 5.1	342 / 553	2.00	Richard Scales
52	13 - 5	393 / 473	78.00	Mildred Scales
51	13 - 3.1	350 / 388	13.919	Earnley H. & Donna J. Owens
50	13 - 3.3	349 / 563	70.509	Richard J. Mathisen
49	13 - 3.4	415 / 733	7.505	Justin L. & Jessica Carpenter
48	13 - 3.5	406 / 668	17.648	Lisa M. Beane
47	13 - 3.2	342 / 509	2.433	Marshall J. & Peggy S. Dalrymple
46	13 - 4	267 / 209	1.03	Marshall J. Dalrymple
45	13 - 3	387 / 671	8.62	Robert D. & Sherry A. Ball
44	13 - 8	WB43 / 425	56.98	Larry Moore & James Moore
43	13 - 7	387 / 671	6.04	Robert D. & Sherry A. Ball
42	13 - 8.1	371 / 36	35.11	Leon B. & Deanna N. Ammons
41	13 - 6	387 / 671	21.42	Robert D. & Sherry A. Ball
40	19 - 56	390 / 553	23.56	Mark L. & Ellen Van Dyne
39	19 - 4	388 / 250	1.20	Harry Wayne Pixter
38	19 - 35	WB30 / 315	29.00	Rebecca Haught
37	19 - 34	318 / 636	95.60	Chauncy P. & Ruth Archer
36	19 - 19	226 / 266	2.308	Keith V. & Barbara Frum
35	19 - 25.2	334 / 117	0.631	Keith & Barbara Frum
34	19 - 25.3	334 / 117	0.631	Keith & Barbara Frum
33	19 - 25.1	303 / 105	1.288	Bill & Patricia Lemasters
32	19 - 8	357 / 127	0.60	Robert G. & Pamela R. Gorby
31	19 - 33	308 / 18	60.12	Mark L. & Ellen W. Van Dyne
30	19 - 55	333 / 208	9.55	Mark & Ellen Van Dyne
29	19 - 5	471 / 812	0.89	Ruth A. McDonald
28	19 - 7	337 / 653	0.77	Jerry E. Jessie K. Tracy
27	19 - 26	326 / 86	0.60	Jack & Margaret M. Henthorn
26	19 - 6	245 / 651	8.05	James E. & Jessie K. Tracy
25	19 - 27	39 / 506	0.08	Gloria L. Lowther
24	19 - 28	39 / 506	0.083	Gloria L. Lowther
23	19 - 29	39 / 506	0.39	Gloria L. Lowther
22	19 - 30	WB30 / 315	5.40	Rebecca A. Haught
21	19 - 31	334 / 603	0.25	WV Department of Highways
20	19 - 52.1	369 / 434	1.00	Hope Fellowship in Christ's Church
19	19 - 52	WB43 / 425	188.36	Larry Moore, et al
18	20 - 2	282 / 506	68.05	Larry Allen & Ronald Wayne Anderson
17	20 - 1	210 / 37	126.90	Mark L. & Ellen W. Van Dyne
16	20 - 34	344 / 268	7.75	Michael P. & Deborah G. Haught
15	20 - 12	264 / 127	39.76	Hilda Steen
14	20 - 12.4	282 / 435	4.493	Ross L. & Marion Elizabeth Keller
13	20 - 83.6	WB40 / 335	30.034	Cynthia Heather & Thomas Hall
12	20 - 83.2	311 / 390	0.545	Ernest D. & Karen S. Helmick
11	20 - 83.7	400 / 592	30.353	Ernest D. & Karen S. Helmick
10	20 - 83	WB40 / 335	99.413	Larry S. & Dianna L. Helmick
9	20 - 98.2	417 / 303	10.493	Charles D. & Crystal D. Price
8	20 - 98.1	353 / 386	2.576	Samuel M. Brookover
7	20 - 35	181 / 376	140.00	Robert C. Sellers, et al
6	20 - 98	247 / 7	74.231	John P.L. Hennessy
5	20 - 97	314 / 699	66.84	Dennis J. & Connie S. Moore
4	26 - 1	448 / 216	61.78	Dennis James Moore, et al
3	26 - 2	314 / 701	63.40	Larry G. & Betsy E. Moore
2	26 - 3	448 / 216	63.02	Dennis James Moore, et al
1	20 - 102	575 / 69	203.59	Antero Midstream, LLC

Tag	Lease Owner(s)
A	CHK-MAC
B	Jerry E. & Jessie K. Tracy
C	Jack & Margaret M. Henthorn
D	Robert G. Gorby
E	Bill & Patricia Lemasters
F	Michael T. Fluharty
G	Keith V. & Barbara Frum
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J	Gloria L. Lowther
K	
L	Rebecca A. Haught
M	Michael P. & Deborah G. Haught
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Tag	Lease Owner(s)
A1	The Swan Living Trust
A2	Larry R. Henthorn, et ux
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A6	Phyllis Roth Tobias
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A19	
A20	
A21	West Virginia Division of Natural Resources
A22	
A23	



FILE NO: 17-54-E-17
 DRAWING NO: Remo 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: May 13 2019
 OPERATOR'S WELL NO. Remo Unit 2H
API WELL NO
 47 - 095 - 02579
 STATE COUNTY PERMIT

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

LOCATION: ELEVATION: As-Built 757' WATERSHED: Outlet Middle Island Creek QUADRANGLE: Middlebourne 13.919; 22.3;
 DISTRICT: Ellsworth Bounty Minerals, LLC; J. Howard Hassig & Teresa A. Hassig; Larry R. Henthorn, et ux; COUNTY: Tyler 15.9; 61.71875;
 SURFACE OWNER: Antero Midstream LLC Richard J. Mathisen & Lisa M. Beane; John P.L. Hennessy; ACREAGE: 203.59 99.413; 63.02;
 ROYALTY OWNER: West Virginia Division of Natural Resources (2); Richard L. Clark LEASE NO: ACREAGE: 70.89; 39.757;
 PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
 PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) BHL Mod 6,500' TVD
 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 21,300' 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. Remo Unit 2H**

Antero Resources Corporation

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



Note: 1 spring was 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. There were no gas wells found or documented within 3000' of the proposed well.

Wellhead Layout (NTS)

- Remo Unit 1H (47-095-02578)
- Proposed Well Remo Unit 2H (47-095-02579)
- Hennessy Unit 1H (47-095-02577)
- Hennessy Unit 2H (47-095-2575)
- Guild Unit 1H (47-095-2573)
- Guild Unit 2H (47-095-2574)
- Guild Unit 3H
- Guild Unit 4H

Notes:
Well No. Remo Unit 2H
UTM Zone 17, NAD 1927
Top Hole Coordinates
N: 14,333,953.69'
E: 1,663,420.21'
Point of Entry Coordinates
N: 14,334,198.63'
E: 1,662,557.69'
Bottom Hole Coordinates
N: 14,346,639.78'
E: 1,658,298.76'

Notes:
West Virginia Coordinate System of 1927, North Zone based upon Differential GPS Measurements.
Well No. Remo Unit 2H Top Hole coordinates are
N: 357,336.47' Latitude: 39°28'20.71"
E: 1,599,579.92' Longitude: 80°55'06.55"
Bottom Hole coordinates are
N: 370,110.67' Latitude: 39°30'26.18"
E: 1,594,669.29' Longitude: 80°56'11.77"
UTM Zone 17, NAD 1983
Top Hole Coordinates Bottom Hole Coordinates
N: 4,369,215.434m N: 4,373,082.136m
E: 507,025.959m E: 505,464.968m
Plat orientation and corner and well references are based upon the grid north meridian.
Well location references are based upon the magnetic meridian.

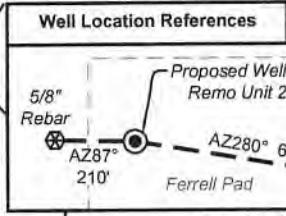
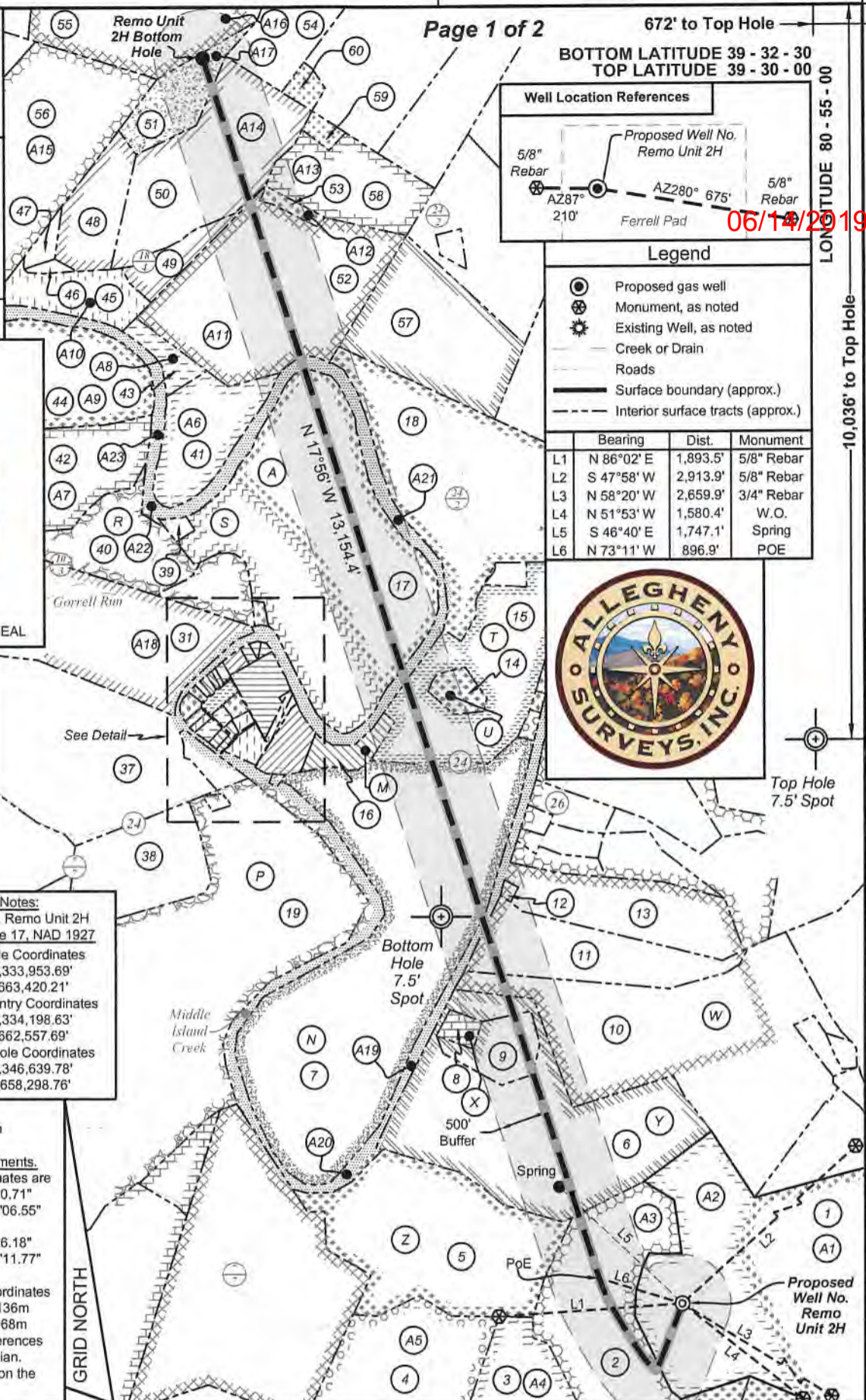
FILE NO: 17-54-E-17
DRAWING NO: Remo 2H Well Plat
SCALE: 1" = 1500'
MINIMUM DEGREE OF ACCURACY: Submeter
PROVEN SOURCE OF ELEVATION: WVDOT, Harrisville, WV

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

DATE: May 13 2019
OPERATOR'S WELL NO. Remo Unit 2H
API WELL NO
47 - 095 - 02579
STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF GAS) PRODUCTION: STORAGE DEEP SHALLOW
LOCATION: ELEVATION: As-Built 757' WATERSHED: Outlet Middle Island Creek QUADRANGLE: Middlebourne 13.919; 22.3;
DISTRICT: Ellsworth Bounty Minerals; LLC; J. Howard Hassig & Teresa A. Hassig; Larry R. Henthorn, et ux; COUNTY: Tyler 15.9; 61.71875;
SURFACE OWNER: Antero Midstream LLC Richard J. Mathisen & Lisa M. Beane; John P.L. Hennessy; ACREAGE: 203.59 99.413; 63.02;
ROYALTY OWNER: West Virginia Division of Natural Resources (2); Richard L. Clark LEASE NO: ACREAGE: 70.89; 39.757;
PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
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 PLUG AND ABANDON CLEAN OUT AND REPLUG TARGET FORMATION: Marcellus Shale ESTIMATED DEPTH: 21,300' 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
- Monument, as noted
- Existing Well, as noted
- Creek or Drain
- Roads
- Surface boundary (approx.)
- Interior surface tracts (approx.)

	Bearing	Dist.	Monument
L1	N 86°02' E	1,893.5'	
L2	S 47°58' W	2,913.9'	5/8" Rebar
L3	N 58°20' W	2,659.9'	3/4" Rebar
L4	N 51°53' W	1,580.4'	W.O.
L5	S 46°40' E	1,747.1'	Spring
L6	N 73°11' W	896.9'	POE



Top Hole 7.5' Spot

Page 1 of 2

5,822' to Bottom Hole

672' to Top Hole

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

LONGITUDE 80 - 55 - 00

10,036' to Top Hole

12,436' to Bottom Hole

06/14/2019

**Antero Resources Well
No. Remo Unit 2H**

Antero Resources Corporation

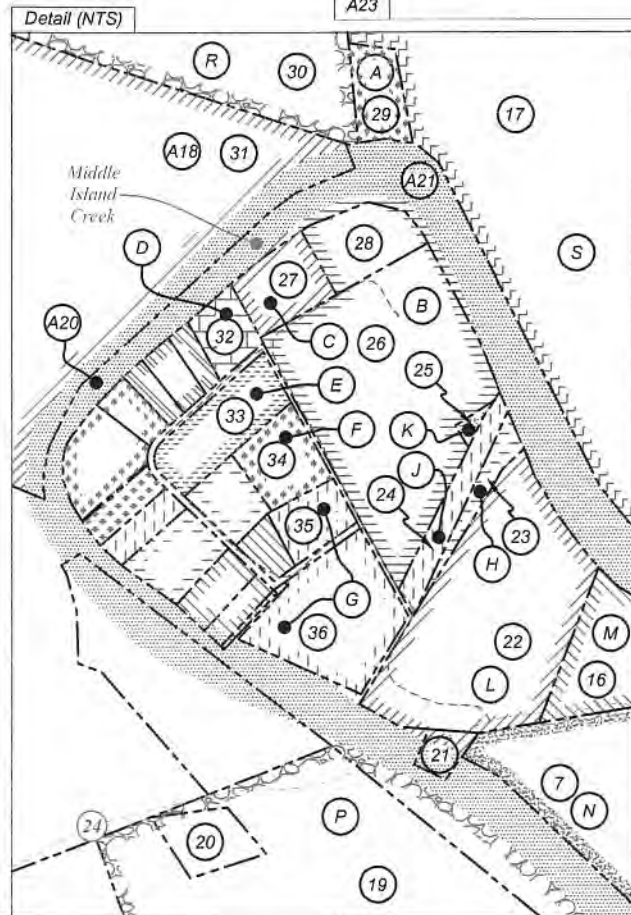



06/14/2019

No.	TM - Par.	Bk / Pg	Acres	Owner(s)
60	14 - 12	393 / 260	2.58	Lawrence Oraton Evens Jr.
59	14 - 28	393 / 260	2.00	Lawrence Oraton Evens Jr.
58	14 - 29	478 / 280	26.00	Boor Family Trust
57	14 - 37	447 / 112	41.90	Theresa L. Hutton
56	15 - 17	191 / 12	127.39	Earl & Donna Smith
55	13 - 1	330 / 931	150.00	James L. & Martha Jo Stewart
54	13 - 2	113 / 6	35.00	Lawrence Oraton Evens Jr.
53	13 - 5.1	342 / 553	2.00	Richard Scales
52	13 - 5	393 / 473	78.00	Mildred Scales
51	13 - 3.1	350 / 388	13.919	Earnley H. & Donna J. Owens
50	13 - 3.3	349 / 563	70.509	Richard J. Mathisen
49	13 - 3.4	415 / 733	7.505	Justin L. & Jessica Carpenter
48	13 - 3.5	406 / 668	17.648	Lisa M. Beane
47	13 - 3.2	342 / 509	2.433	Marshall J. & Peggy S. Dalrymple
46	13 - 4	267 / 209	1.03	Marshall J. Dalrymple
45	13 - 3	387 / 671	8.62	Robert D. & Sherry A. Ball
44	13 - 8	WB43 / 425	56.98	Larry Moore & James Moore
43	13 - 7	387 / 671	6.04	Robert D. & Sherry A. Ball
42	13 - 8.1	371 / 36	35.11	Leon B. & Deanna N. Ammons
41	13 - 6	387 / 671	21.42	Robert D. & Sherry A. Ball
40	19 - 56	390 / 553	23.56	Mark L. & Ellen Van Dyne
39	19 - 4	388 / 250	1.20	Harry Wayne Pixter
38	19 - 35	WB30 / 315	29.00	Rebecca Haught
37	19 - 34	318 / 636	95.60	Chauncy P. & Ruth Archer
36	19 - 19	226 / 266	2.308	Keith V. & Barbara Frum
35	19 - 25.2	334 / 117	0.631	Keith & Barbara Frum
34	19 - 25.3	334 / 117	0.631	Keith & Barbara Frum
33	19 - 25.1	303 / 105	1.288	Bill & Patricia Lemasters
32	19 - 8	357 / 127	0.60	Robert G. & Pamela R. Gorby
31	19 - 33	308 / 18	60.12	Mark L. & Ellen W. Van Dyne
30	19 - 55	333 / 208	9.55	Mark & Ellen Van Dyne
29	19 - 5	471 / 812	0.89	Ruth A. McDonald
28	19 - 7	337 / 653	0.77	Jerry E. & Jessie K. Tracy
27	19 - 26	326 / 86	0.60	Jack & Margaret M. Henthorn
26	19 - 6	245 / 651	8.05	James E. & Jessie K. Tracy
25	19 - 27	39 / 506	0.08	Gloria L. Lowther
24	19 - 28	39 / 506	0.083	Gloria L. Lowther
23	19 - 29	39 / 506	0.39	Gloria L. Lowther
22	19 - 30	WB30 / 315	5.40	Rebecca A. Haught
21	19 - 31	334 / 603	0.25	WV Department of Highways
20	19 - 52.1	369 / 434	1.00	Hope Fellowship in Christ's Church
19	19 - 52	WB43 / 425	188.36	Larry Moore, et al
18	20 - 2	282 / 506	68.05	Larry Allen & Ronald Wayne Anderson
17	20 - 1	210 / 37	126.90	Mark L. & Ellen W. Van Dyne
16	20 - 34	344 / 268	7.75	Michael P. & Deborah G. Haught
15	20 - 12	264 / 127	39.76	Hilda Steen
14	20 - 12.4	282 / 435	4.493	Ross L. & Marion Elizabeth Keller
13	20 - 83.6	WB40 / 335	30.034	Cynthia Heather & Thomas Hall
12	20 - 83.2	311 / 390	0.545	Ernest D. & Karen S. Helmick
11	20 - 83.7	400 / 592	30.353	Ernest D. & Karen S. Helmick
10	20 - 83	WB40 / 335	99.413	Larry S. & Dianna L. Helmick
9	20 - 98.2	417 / 303	10.493	Charles D. & Crystal D. Price
8	20 - 98.1	353 / 386	2.576	Samuel M. Brookover
7	20 - 35	181 / 376	140.00	Robert C. Sellers, et al
6	20 - 98	247 / 7	74.231	John P.L. Hennessy
5	20 - 97	314 / 699	66.84	Dennis J. & Connie S. Moore
4	26 - 1	448 / 216	61.78	Dennis James Moore, et al
3	26 - 2	314 / 701	63.40	Larry G. & Betsy E. Moore
2	26 - 3	448 / 216	63.02	Dennis James Moore, et al
1	20 - 102	575 / 69	203.59	Antero Midstream, LLC

Tag	Lease Owner(s)
A	CHK-MAC
B	Jerry E. & Jessie K. Tracy
C	Jack & Margaret M. Henthorn
D	Robert G. Gorby
E	Bill & Patricia Lemasters
F	Michael T. Fluharty
G	Keith V. & Barbara Frum
H	
J	Gloria L. Lowther
K	
L	Rebecca A. Haught
M	Michael P. & Deborah G. Haught
N	Robert Earl Pitts
P	Ruth E. Moore, widow
R	Mark & Ellen VanDyne
S	Mark & Ellen VanDyne
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A22	
A23	



FILE NO: 17-54-E-17	 <p>STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION OIL AND GAS DIVISION</p>	DATE: May 13 2019
DRAWING NO: Remo 2H Well Plat		OPERATOR'S WELL NO. Remo Unit 2H
SCALE: 1" = 1500'		API WELL NO
MINIMUM DEGREE OF ACCURACY: Submeter		47 - 095 - 02579
PROVEN SOURCE OF ELEVATION: WVDOT, Harrisville, WV	STATE COUNTY PERMIT	

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ROYALTY OWNER: West Virginia Division of Natural Resources (2); Richard L. Clark Richard J. Mathisen & Lisa M. Beane; John P.L. Hennessy; ACREAGE: 203.59 140; 84.724;
LEASE NO: Hilda Steen; Robert Earl Pitts; CHK-MAC; Mildred L. Scales; ACREAGE: 70.89; 39.757;
PROPOSED WORK: DRILL CONVERT DRILL DEEPER FRACTURE OR STIMULATE PLUG OFF OLD FORMATION
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