



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

Jim Justice, Governor
Austin Caperton, Cabinet Secretary
www.dep.wv.gov

PERMIT MODIFICATION APPROVAL
Horizontal 6A / Horizontal 6A Well - 1

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET

DENVER, CO 80202


Re: Permit Modification Approval for JUBUBEE UNIT 1H
47-095-02335-00-00

Change point of entry, horizontal leg length, TMD, and TVD.

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: JUBUBEE UNIT 1H
Farm Name: MONROE, EDNA
U.S. WELL NUMBER: 47-095-02335-00-00
Horizontal 6A / Horizontal 6A Well - 1
Date Issued: 8/4/2017

Promoting a healthy environment.

08/04/2017



July 17, 2017

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: Mr. Wade Stansberry
601 57th Street
Charleston, WV 25304

Mr. Stansberry:

Antero Resources Corporation (Antero) would like to submit the following permit modification for one approved well on the Estlack Pad. We are requesting to change the point of entry which will change the horizontal leg length, Total Measured Depth and Total Vertical Depth of the Jujubee Unit 1H (API# 47-095-02335).

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 lease we will be drilling into
- REVISED Mylar Plats, which shows the new wellbore path

If you have any questions please feel free to contact me at (303) 357-6759.

Thank you in advance for your consideration.

Sincerely,

A handwritten signature in blue ink that reads "Samantha Klaas". The signature is fluid and cursive, with the first name being the most prominent.

Samantha Klaas
Permitting Agent
Antero Resources Corporation

Enclosures

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JUL 18 2017
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08/04/2017



47095007000001

JUJUBEE UNIT 1H (ESTLACK PAD) - AREA OF REVIEW 35-8-5.11 PAGE 1

SANCHO OIL & GAS NOL

47095017250000

TKI ESTLACK E THOMAS 2

47095016940000

SANCHO OIL & GAS EST

47095023350000

ANTERO JUJUBEE UNIT 1H

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0 1.127

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PERMIT MODIFICATION (API# 47-095-02335)

UWI (APINum)	Well Name	Well Number	Operator	Hist Oper
47095007000001	NOLAN	2	SANCHO OIL & GAS	SANCHO OIL & GAS
47095018400000	TALLMAN TIMOTHY	2A	TEXAS KEYSTONE INC	SANCHO OIL & GAS

ELEV_GR	TD	TD(SSSTD)	Perf Interval	Perforated Formations	Producible not perforated
1159	5375	-4216	2202-5127	Big Injun, Benson	Big Lime, Keener, Gordon, Riley
1121	5282	-4161	4676-4679	Riley, Benson	Big Lime, Keener, Gordon

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WW-6B
(04/15)

API NO. 47- 095 - _____
 OPERATOR WELL NO. Jubee Unit 1H
 Well Pad Name: Existing Estlack Pad

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

1) Well Operator: Antero Resources Corporation 494488557 095 - Tyler Centerville Middlebourne 7.5'
 Operator ID County District Quadrangle

2) Operator's Well Number: Jubee Unit 1H Well Pad Name: Existing Estlack Pad

3) Farm Name/Surface Owner: Edna Monroe Public Road Access: CR 30/1

4) Elevation, current ground: 1142' Elevation, proposed post-construction: 1142'

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: 6800' TVD, Anticipated Thickness- 55 feet, Associated Pressure- 2800#

8) Proposed Total Vertical Depth: 6800' TVD

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 17752' MD

11) Proposed Horizontal Leg Length: 10879'

12) Approximate Fresh Water Strata Depths: 131', 161', 208'

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

14) Approximate Saltwater Depths: 772', 847', 1890', 1968'

15) Approximate Coal Seam Depths: 200'

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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WW-6B
(04/15)

API NO. 47- 095 -
OPERATOR WELL NO. Jujubee Unit 1H
Well Pad Name: Existing Estlack 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#	40'	40'	CTS, 38 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#	17752'	17752'	CTS, 4474 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"	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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Page 2 of 3
08/04/2017

WW-6B
(10/14)

API NO. 47-095 -

OPERATOR WELL NO. Jubee Unit 1H

Well Pad Name: Existing Estlack 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.

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): 38.12 acres

22) Area to be disturbed for well pad only, less access road (acres): 13.58 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
Carl W. Nolan Lease			
Carl W. Nolan	Warren R. Haught	1/8	DB 0214/0578
Warren R. Haught	Haught, Inc.	Assignment	DB 0242/0027
Haught, Inc.	Haught Oil Producing Corporation	Merger	Exhibit 2
Haught Oil Producing Corporation	TIG Corporation	Assignment	DB 0265/0158
TIG Corporation	Connoco Oil & Gas Leasing and Redevelopment	Assignment	DB 0274/0269
Connoco Oil & Gas Leasing and Redevelopment	Jay-Bee Oil and Gas Company	Assignment	DB 0275/0161
Jay-Bee Oil and Gas Company	Sancho Oil and Gas Corporation	Assignment	DB 0330/0831
Sancho Oil and Gas Corporation	Trans Energy, Inc.	Assignment	DB 0375/0792
Trans Energy, Inc.	Republic Energy Ventures, LLC	Assignment	DB 0375/0800
Republic Energy Ventures, LLC	Antero Resources Corporation	Assignment	DB 0436/0177
Stephanie McGowen Lease			
Stephanie McGowan, et al	Dominion Appalachian Development, Inc.	1/8	0330/0454
Dominion Appalachian Development, Inc.	Dominion Appalachian Development, LLC	Name Change	Exhibit 3
Dominion Appalachian Development, LLC	CONSOL Gas Appalachian Development, LLC	Certificate of Amendment	COI 0009/0131
CONSOL Gas Appalachian Development, LLC	CONSOL Gas Reserves Inc.	Certificate of Amendment	COI 0009/0144
CONSOL Gas Reserves Inc.	CONSOL Gas Company	Certificate of Amendment	COI 0009/0156
CONSOL Gas Company	CNX Gas Company, LLC	Name Change and Merger	0384/0191
CNX Gas Company, LLC	Antero Resources Corporation	Notice of Agreement	0487/0048
E. Thomas Estlack et ux Lease (TM 8-24.3)			
E. Thomas Estlack et ux	Sancho Oil and Gas Corporation	1/8	DB 0330/0834
Sancho Oil and Gas Corporation	Antero Resources Corporation	Assignment	DB 0437/0381
E. Thomas Estlack et ux Lease (TM 8-24, 24.1)			
E. Thomas Estlack et ux	Sancho Oil and Gas Corporation	1/8	0330/0838
Sancho Oil and Gas Corporation	Antero Resources Corporation	Assignment	0436/0177
David Riggs Lease			
David Riggs	Antero Resources Corporation	1/8	DB 0429/0610
Harry Ash & Jessie D. Ash et al Lease			
Harry Ash & Jessie D. Ash et al	J.A. Underwood	1/8	DB 0171/0365
J.A. Underwood	Quaker State Oil Refining Corporation	Assignment	DB 0171/0528
Quaker State Oil Refining Corporation	Petro Mark, Inc., A Corporation	Assignment	DB 0246/0324
Petro Mark Inc., A Corporation	Sancho Oil and Gas Corporation	Assignment	DB 0268/0194
Sancho Oil and Gas Corporation	Antero Resources Corporation	Assignment	DB 0436/0177
David E. Bowyer Lease			
David E. Bowyer	Antero Resources Appalachian Corporation	1/8+	0399/0369
Antero Resources Appalachian Corporation	Antero Resources Corporation	Name Change	Exhibit 1
Larry F. Hadley Lease			
Larry F. Hadley, et ux	Antero Resources Corporation	1/8+	0452/0567

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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.

08/04/2017

Operator's Well Number Jujubee Unit 1H

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>Springhill Cemetery Lease</u> Trustees of the Springhill Cemetery	Antero Resources Corporation	1/8+	0497/0151
<u>Michael P. Simmons Lease</u> Michael Paul Simmons	Antero Resources Corporation	1/8+	0480/0666

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CONTINUED ON NEXT PAGE

WW-6A1
(5/13)

Operator's Well No. Jujubee 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
<u>Robert C. Dean Lease</u>	Robert C. Dean	Antero Resources Corporation	1/8+	0481/0807

*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: Robert S. Tucker 

Its: Vice President of Geology

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Page 1 of

WV Department of
Environmental Protection
08/04/2017

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.wv6os.com
E-mail: business@wv6os.com

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 Appalachian 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.)
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.

Form CF-4

Issued by the Office of the Secretary of State

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JUL 18 2013

FORM WW-6A1
EXHIBIT 2



I, Hon Hechler, Secretary of State of the State of West Virginia, hereby certify that
THE FOLLOWING IS A TRUE AND CORRECT COPY OF THE ARTICLES OF MERGER OF:

HAUGHT, INC., A WEST VIRGINIA CORPORATION AND HAUGHT OIL PRODUCING CORP., A UTAH CORPORATION DULY SIGNED AND VERIFIED PURSUANT TO THE PROVISIONS OF SECTION 38, ARTICLE 1, CHAPTER 31 OF THE CODE OF WEST VIRGINIA, 1931, AS AMENDED, HAVE BEEN RECEIVED AND ARE FOUND TO CONFORM TO LAW.

ACCORDINGLY, I HEREBY ISSUE THIS CERTIFICATE OF MERGER, MERGING HAUGHT, INC., WITH AND INTO HAUGHT OIL PRODUCING CORP., THE SURVIVOR AND ATTACH A DUPLICATE ORIGINAL OF SAID ARTICLES OF MERGER AS APPEARS FROM THE RECORDS OF MY SAID OFFICE.

Given under my hand and the Great Seal of the State of West Virginia, on this



TWELFTH day of
JANUARY 19 87

Kan Hechler
Secretary of State.

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08/04/2017

FORM WW-6A1
EXHIBIT 3

AC

State of West Virginia



Certificate

*I, Betty Ireland, Secretary of State of the
State of West Virginia, hereby certify that*

DOMINION APPALACHIAN DEVELOPMENT, INC.
(a Virginia corporation)

filed an application for Conversion 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 CONVERSION

converting the corporation to

DOMINION APPALACHIAN DEVELOPMENT, LLC
(a Virginia Limited Liability Company)

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JUL 18 2017

WV Department of
Environmental Protection

*Given under my hand and the
Great Seal of the State of
West Virginia on*

February 23, 2006



Betty Ireland

Secretary of State

08/04/2017

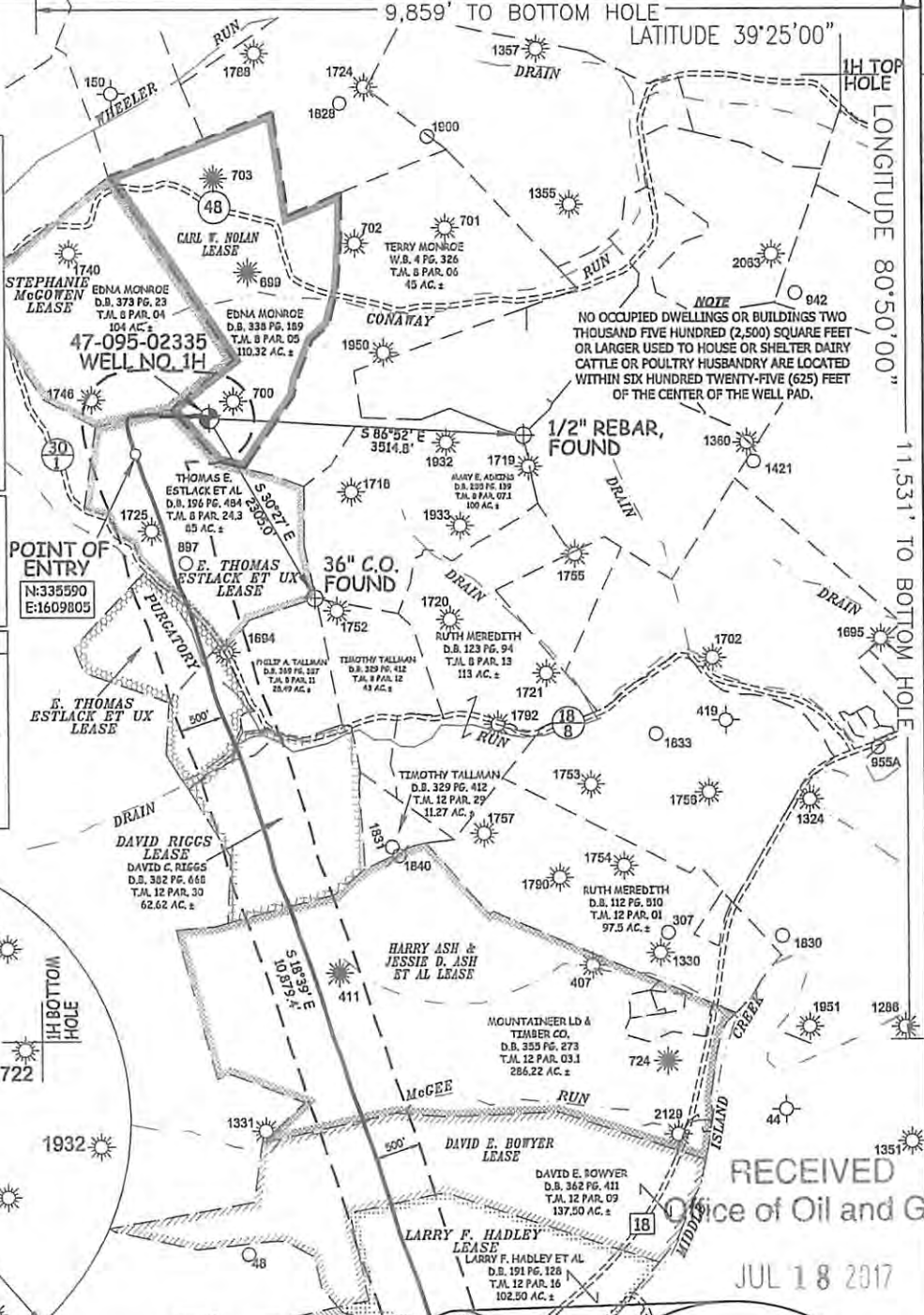
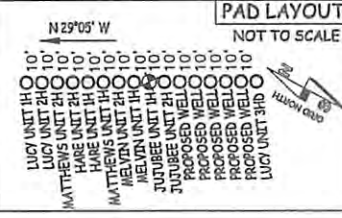
LATITUDE 39°25'00" 896'

LONGITUDE 80°52'30"

Antero Resources Corporation
Well No. Jujubee Unit 1H
47-095-02335 (AS DRILLED)

AS DRILLED DATA:
WELL 1H TOP HOLE INFORMATION:
N: 335,986ft E: 1,610,634ft
LAT: 39°24'51.41" LON: 80°52'41.42"
BOTTOM HOLE INFORMATION:
N: 325,283ft E: 1,613,286ft
LAT: 39°23'06.03" LON: 80°52'05.56"
WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

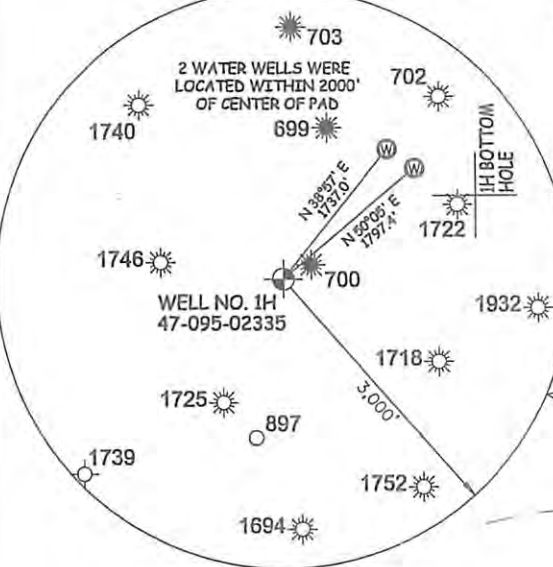
(NAD) 83 (UTM) ZONE 17 COORDS:
WELL 1H TOP HOLE INFORMATION:
N: 4,362,767m E: 510,502m
BOTTOM HOLE INFORMATION:
N: 4,359,520m E: 511,364m



NOTE
NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.

1/2" REBAR FOUND

36" C.O. FOUND



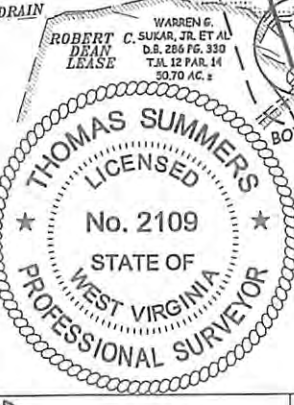
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WV Department of Environmental Protection

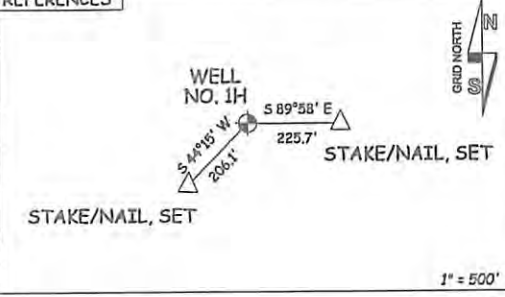


STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WILLOW LAND SURVEYING PLLC
220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415



JOB # 15-011WA
DRAWING # JUJUBEE1HADMOD
SCALE 1" = 2000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS
STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS

LEGEND
--- Surface Owner Boundary Lines +/-
--- Interior Surface Tracts +/-
X Existing Fence
⊕ Found monument, as noted
THOMAS SUMMERS P.S. 2109
DATE 06/30/17
OPERATOR'S WELL# JUJUBEE UNIT #1H



WELL TYPE: OIL GAS X LIQUID INJECTION WASTE DISPOSAL 47 - 095 - 02335 MOD
(IF "GAS") PRODUCTION X STORAGE DEEP SHALLOW X STATE COUNTY PERMIT COUNTY NAME
LOCATION: ELEVATION 1,142' - AS-DRILLED WATERSHED HEADWATERS MIDDLE ISLAND CREEK 08/04/2017
QUADRANGLE MIDDLEBOURNE 7.5' (TH) SHIRLEY 7.5' (BH) DISTRICT CENTERVILLE COUNTY TYLER
SURFACE OWNER EDNA MONROE ACREAGE 110.32 ACRES +/-
OIL & GAS ROYALTY OWNER CARL W. NOLAN; E. THOMAS ESTLACK ET UX; STEPHANIE MCGOWEN; E. THOMAS ESTLACK ET UX; DAVID RIGGS; LEASE ACREAGE 116 AC +/-; 65.5 AC +/-; 170 AC +/-; 60 AC +/-; 65 AC +/-; 291 AC +/-; 138 AC +/-; 102.5 AC +/-; 2.88 AC +/-; 1.14 AC +/-; 2.48 AC +/-; 50.7 AC +/-
HARRY ASH & JESSIE D. ASH ET AL; DAVID E. BOWYER; LARRY F. HADLEY; JOHN STARKEY; SPRINGHILL CEMETERY; MICHAEL P. SIMMONS; ROBERT C. DEAN
PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL
(SPECIFY) POE MOD PLUG & ABANDON CLEAN OUT & REPLUG
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,645' TVD 17,752' MD
WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM
ADDRESS 1615 WYNKOOP ST. ADDRESS 5400 D BIG TYLER ROAD
DENVER, CO 80202 CHARLESTON, WV 25313

LATITUDE 39°25'00" -896'

LATITUDE 39°25'00"

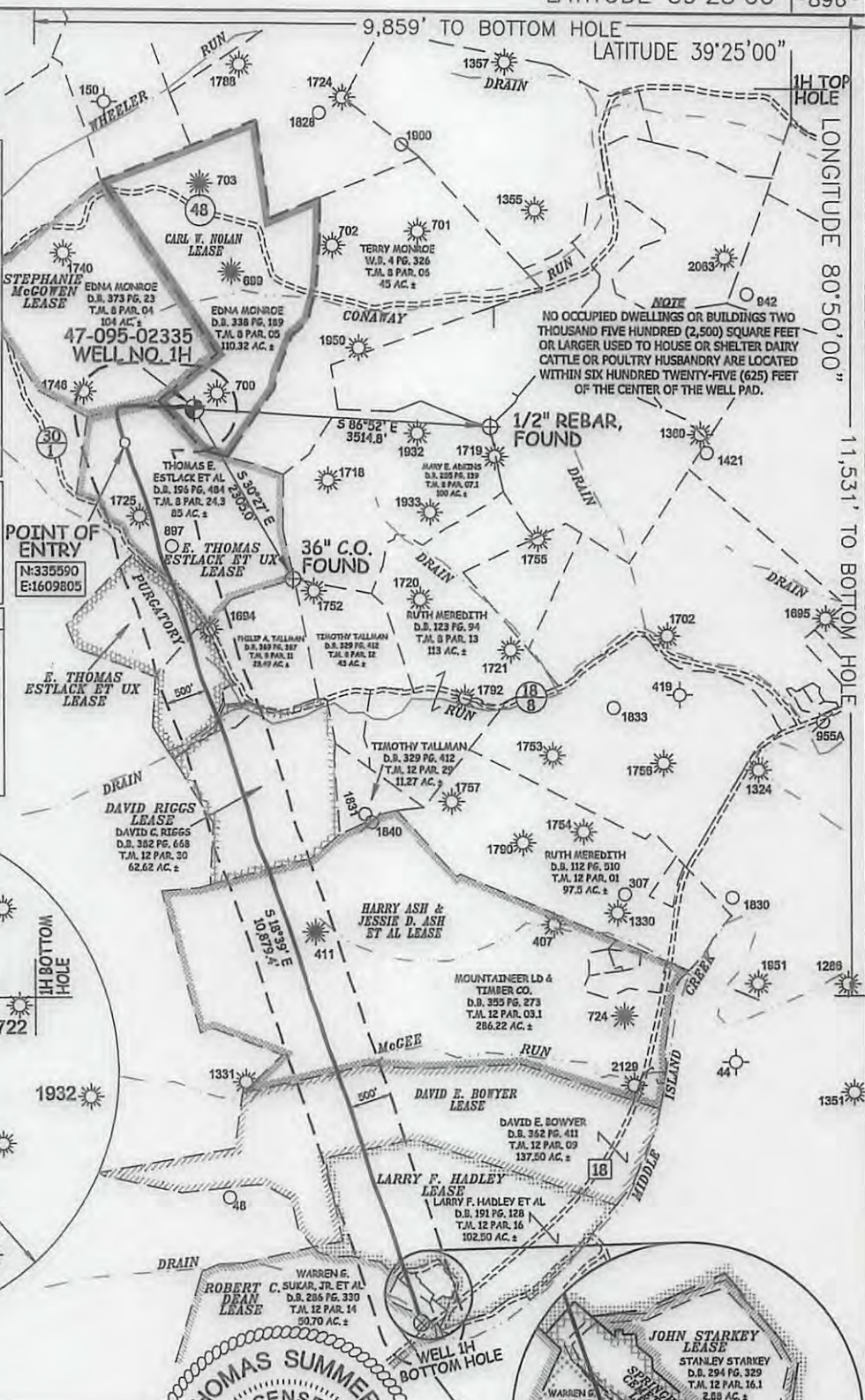
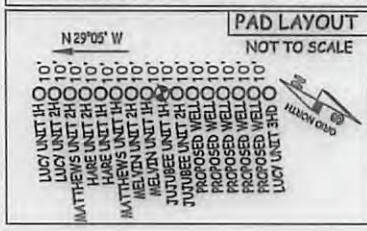
LONGITUDE 80°50'00"

LONGITUDE 80°52'30"

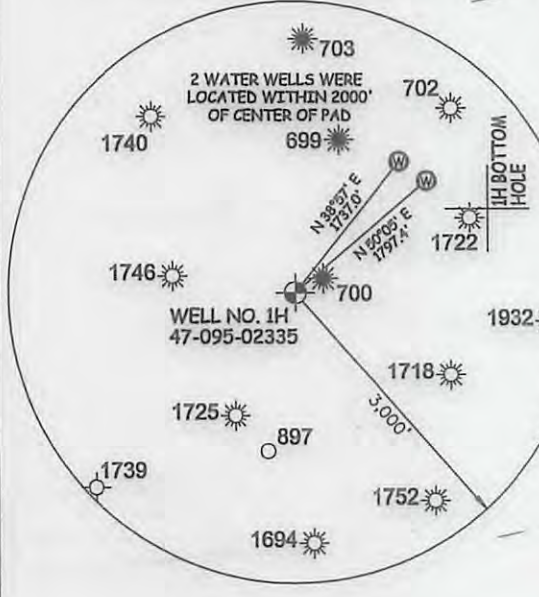
Antero Resources Corporation
Well No. Jujubee Unit 1H
47-095-02335 (AS DRILLED)

AS DRILLED DATA:
WELL 1H TOP HOLE INFORMATION:
N: 335,986ft E: 1,610,634ft
LAT: 39°24'51.41" LON: 80°52'41.42"
BOTTOM HOLE INFORMATION:
N: 325,283ft E: 1,613,286ft
LAT: 39°23'06.03" LON: 80°52'05.56"
WEST VIRGINIA COORDINATE SYSTEM OF 1927 NORTH ZONE. ZONE WAS DERIVED FROM MEASUREMENTS TAKEN WITH TRIMBLE GEOXT SUBMETER MAPPING GRADE GPS UNIT. PLAT ORIENTATION, CORNER, AND WELL REFERENCE TIE LINES ARE BASED ON GRID NORTH.

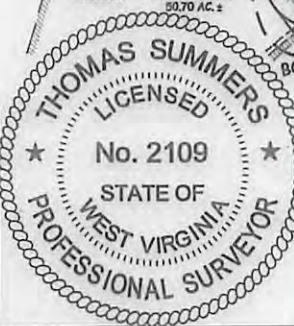
(NAD) 83 (UTM) ZONE 17 COORDS:
WELL 1H TOP HOLE INFORMATION:
N: 4,362,767m E: 510,502m
BOTTOM HOLE INFORMATION:
N: 4,359,520m E: 511,364m



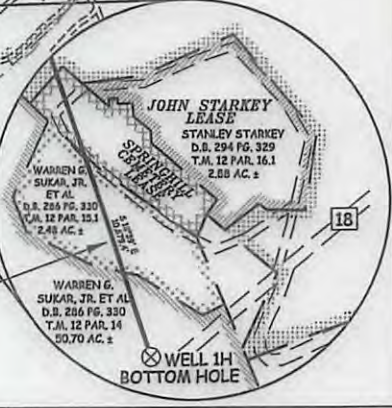
NOTE
NO OCCUPIED DWELLINGS OR BUILDINGS TWO THOUSAND FIVE HUNDRED (2,500) SQUARE FEET OR LARGER USED TO HOUSE OR SHELTER DAIRY CATTLE OR POULTRY HUSBANDRY ARE LOCATED WITHIN SIX HUNDRED TWENTY-FIVE (625) FEET OF THE CENTER OF THE WELL PAD.



STATE OF WEST VIRGINIA, DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
WILLOW LAND SURVEYING PLLC
220 MASONIC AVE. PENNSBORO WEST VIRGINIA 26415



MICHAEL P. SIMMONS LEASE



JOB # 15-011WA
DRAWING # JUJUBEE1HADMOD
SCALE 1" = 2000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS
STATE OF WEST VIRGINIA DEPARTMENT OF ENERGY DIVISION OF OIL AND GAS

LEGEND
--- Surface Owner Boundary Lines +/-
--- Interior Surface Tracts +/-
--- Existing Fence
X Found monument, as noted
THOMAS SUMMERS P.S. 2109
DATE 06/30/17
OPERATOR'S WELL# JUJUBEE UNIT #1H

REFERENCES
WELL NO. 1H
STAKE/NAIL, SET
STAKE/NAIL, SET
1" = 500'

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___ 47 - 095 - 02335 MOD
(IF "GAS") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X STATE COUNTY PERMIT
LOCATION: ELEVATION 1,142' - AS-DRILLED WATERSHED HEADWATERS MIDDLE ISLAND CREEK
QUADRANGLE MIDDLEBOURNE 7.5' (TH) SHIRLEY 7.5' (BH) DISTRICT CENTERVILLE COUNTY TYLER
SURFACE OWNER EDNA MONROE ACREAGE 110.32 ACRES +/-
OIL & GAS ROYALTY OWNER CARL W. NOLAN; E. THOMAS ESTLACK ET UX; STEPHANIE MCGOWEN; E. THOMAS ESTLACK ET UX; DAVID RIGGS; LEASE ACREAGE 116 AC.; 65.5 AC.; 170 AC.; 50 AC.; 65 AC.;
HARRY ASH & JESSIE D. ASH ET AL; DAVID E. BOWYER; LARRY F. HADLEY; JOHN STARKEY; SPRINGHILL CEMETERY; MICHAEL P. SIMMONS; ROBERT C. DEAN 291 AC.; 138 AC.; 102.5 AC.; 2.88 AC.; 1.14 AC.; 2.48 AC.; 50.7 AC.;
PROPOSED WORK: DRILL ___ CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE ___
PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___ OTHER PHYSICAL CHANGE IN WELL
(SPECIFY) POE MOD PLUG & ABANDON CLEAN OUT & REPLUG
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08/04/2017