west virginia department of environmental protection

Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304
(304) 926-0450
(304) 926-0452 fax

Earl Ray Tomblin, Governor
Randy C. Huffman, Cabinet Secretary
www.dep.wv.gov

PERMIT MODIFICATION APPROVAL

June 22, 2016

ANTERO RESOURCES CORPORATION
1615 WYNKOOP STREET
DENVER, CO 80202

Re: Permit Modification Approval for API Number 9502346, Well #: DEAN UNIT 1H

Corrected Coordinates and Lengthened Lateral

Oil and Gas Operator:
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.

Please call James Martin at 304-926-0499, extension 1654 if you have any questions.

Sincerely,

Laura L. Adkins

Gene Smith
for Assistant Chief of Permitting
Office of Oil and Gas

PERMIT MODIFICATION API# 47-095-02346 MOD

WW-6B
(04/15)

API NO. 47- 095 - 02346 MOD
OPERATOR WELL NO. Dean Unit 1H
Well Pad Name: Weigle East Pad

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

1) Well Operator: Antero Resources Corporat

Operator ID	County	District	Quadrangle
494507062	095 - Tyler	Ellsworth	Shirley 7.5'

2) Operator's Well Number: Dean Unit 1H Well Pad Name: Weigle East Pad

3) Farm Name/Surface Owner: Edwin C. Weigle Public Road Access: CR 18/14

4) Elevation, current ground: 812' Elevation, proposed post-construction: 812'

5) Well Type (a) Gas X Oil ____ Underground Storage ____
Other ____
(b)If Gas Shallow X Deep ____
Horizontal X

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- 2800#

8) Proposed Total Vertical Depth: 6500' TVD

9) Formation at Total Vertical Depth: Marcellus Shale

10) Proposed Total Measured Depth: 16,700' MD

11) Proposed Horizontal Leg Length: 9449'

12) Approximate Fresh Water Strata Depths: 9', 194', 366'

13) Method to Determine Fresh Water Depths: Scardina Unit 1H (API# 47-095-02169) on same pad.

14) Approximate Saltwater Depths: 1931', 1136'

15) Approximate Coal Seam Depths: 1380', 1461'

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 X

(a) If Yes, provide Mine Info: Name: ____
Depth: ____
Seam: ____
Owner: ____

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Office of Oil & Gas
MAY 23 2016

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#	60'	60'	CTS, 164 Cu. Ft.
Fresh Water	13-3/8"	New	J-55/H-40	54.5#/48#	440'	440'*see #19	CTS, 611 Cu. Ft.
Coal	9-5/8"	New	J-55	36#	2450'	2450'	CTS, 998 Cu. Ft.
Intermediate							
Production	5-1/2"	New	P-110	20#	16,700'	16,700'	4200 Cu. Ft
Tubing	2-3/8"	New	N-80	4.7#		7100'	
Liners							

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

PACKERS

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

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Office of Oil & Gas
MAY 23 2016

WW-6B
(10/14)

API NO. 47- 095 - 02346 MOD
OPERATOR WELL NO. Dean Unit 1H
Well Pad Name: Weigle East 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 freshwater 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): 22.17 acres

22) Area to be disturbed for well pad only, less access road (acres): 3.22 acres (*expanded LOD)

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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MAY 23 2016

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 Dean Unit 1H
PERMIT MODIFICATION API# 47-095-02346 MOD

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
Kathy Ann Seago Lease ✓			
Kathy Ann Seago as a beneficiary of the Estate of Edwin C. Weigle, deceased	Antero Resources Appalachian Corporation	1/8+	0402/0448
Antero Resources Appalachian Corporation	**Antero Resources Corporation**	**Name Change**	**Exhibit 1**
Richard L. Seago, et ux Lease ✓			
Richard L. Seago	Antero Resources Appalachian Corporation	1/8+	0403/0733
Antero Resources Appalachian Corporation	**Antero Resources Corporation**	**Name Change**	**Exhibit 1**
Robert L. Dean Lease ✓			
Robert L. Dean	Antero Resources Appalachian Corporation	1/8+	0410/0659
Antero Resources Appalachian Corporation	**Antero Resources Corporation**	**Name Change**	**Exhibit 1**
James E. Gregg, et ux Lease ✓			
James E. Gregg, et ux	Antero Resources Appalachian Corporation	1/8+	0408/0460
Antero Resources Appalachian Corporation	**Antero Resources Corporation**	**Name Change**	**Exhibit 1**
John H. Crumrine, et al Lease ✓			
John H. Crumrine, et al	Drilling Appalachian Corporation	1/8	0257/0521
Drilling Appalachian Corporation	Antero Resources Appalachian Corporation	Assignment	0422/0074
Antero Resources Appalachian Corporation	**Antero Resources Corporation**	**Name Change**	**Exhibit 1**
WVDNR Lease ✓			
West Virginia Division of Natural Resources	**Antero Resources Corporation**	**1/8+**	**0483/0269**
Tyler County Fair Association Lease ✓			
Tyler County Fair Association, Inc.	Antero Resources Appalachian Corporation	1/8+	0424/0521
Antero Resources Appalachian Corporation	**Antero Resources Corporation**	**Name Change**	**Exhibit 1**
Kathy A. Keating Lease ✓			
Kathy A. Keating	**Antero Resources Corporation**	**1/8+**	**0438/0438**
David M. Smith Lease ✓			
David M. Smith	**Antero Resources Corporation**	**1/8+**	**0505/0763**

Received
Office of Oil & Gas
MAY 23 2016

***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. Dean 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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(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
Benjamin F. Hill, et ux Lease				
	Benjamin F. Hill	Antero Resources Corporation	1/8+	0424/0549

*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.

Received
Office of Oil & Gas
MAY 23 2016

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

47-095-02346 MOD

FORM WW-6A1
EXHIBIT 1

FILED
JUN 10 2013
IN THE OFFICE OF SECRETARY OF STATE

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:

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) 357-7310
   Contact Name — Phone Number

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

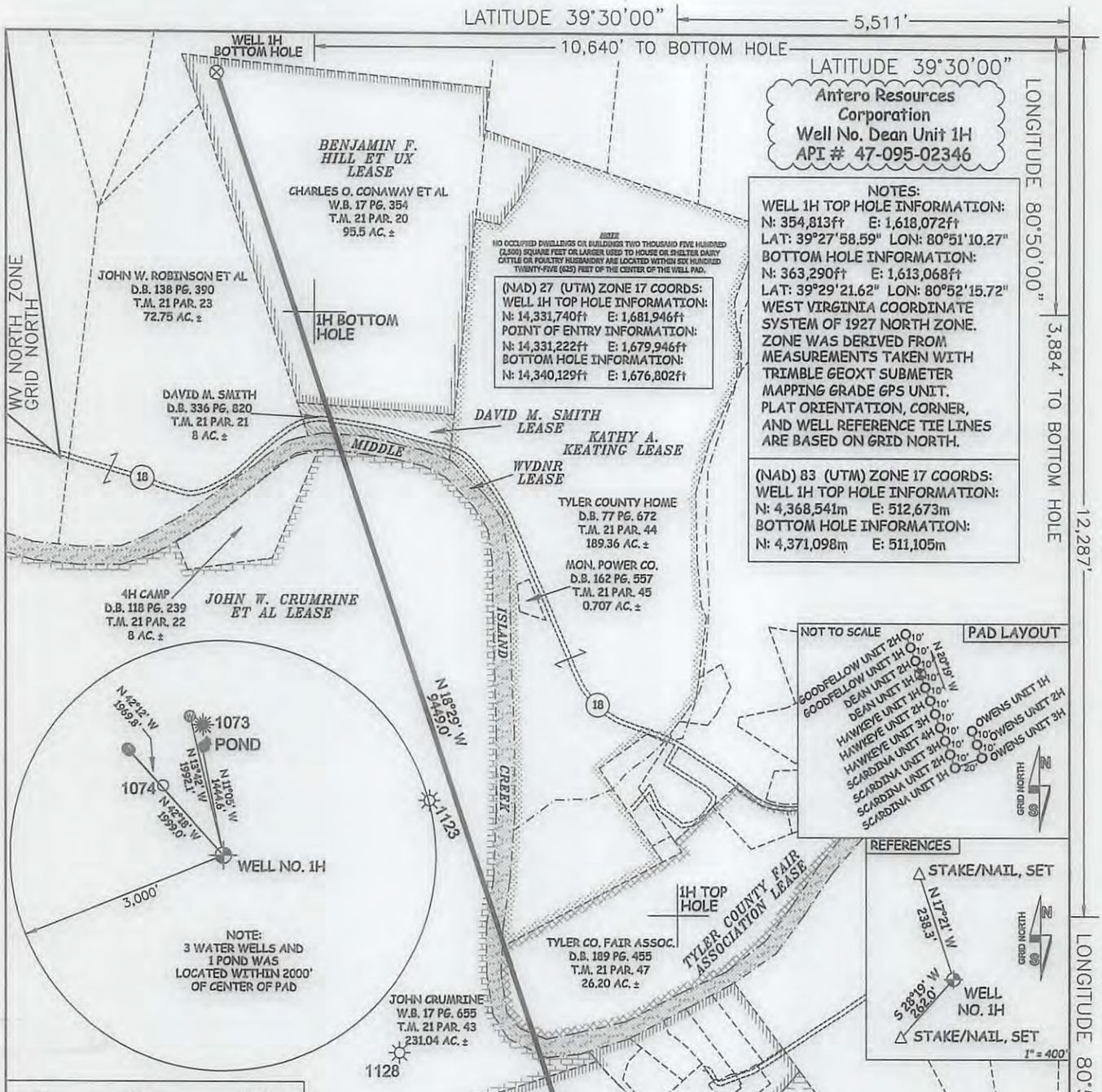
   Print Name of Signer: Alvyn A. Schopp — Title/Capacity: Authorized Person

   Signature: [signature] — Date: June 10, 2013

*Important Legal Notice Regarding Signature: Per West Virginia Code §31D-1-129, Penalty for signing false document. Any person who signs a document he or she knows is false in any material respect and knows that the document is to be delivered to the secretary of state for filing is guilty of a misdemeanor and, upon conviction thereof, shall be fined not more than one thousand dollars or confined in the county or regional jail not more than one year, or both.

Received
Office of Oil & Gas
MAY 23 2016

WV013 - 04/16/2013 Wolters Kluwer CCH Inc



47	095	02346 MOD
STATE	COUNTY	PERMIT

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 PERSCRIBED BY THE DEPTARTMENT 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 # 13-040WA
DRAWING # DEAN1HR
SCALE 1" = 1000'
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
Found monument, as noted

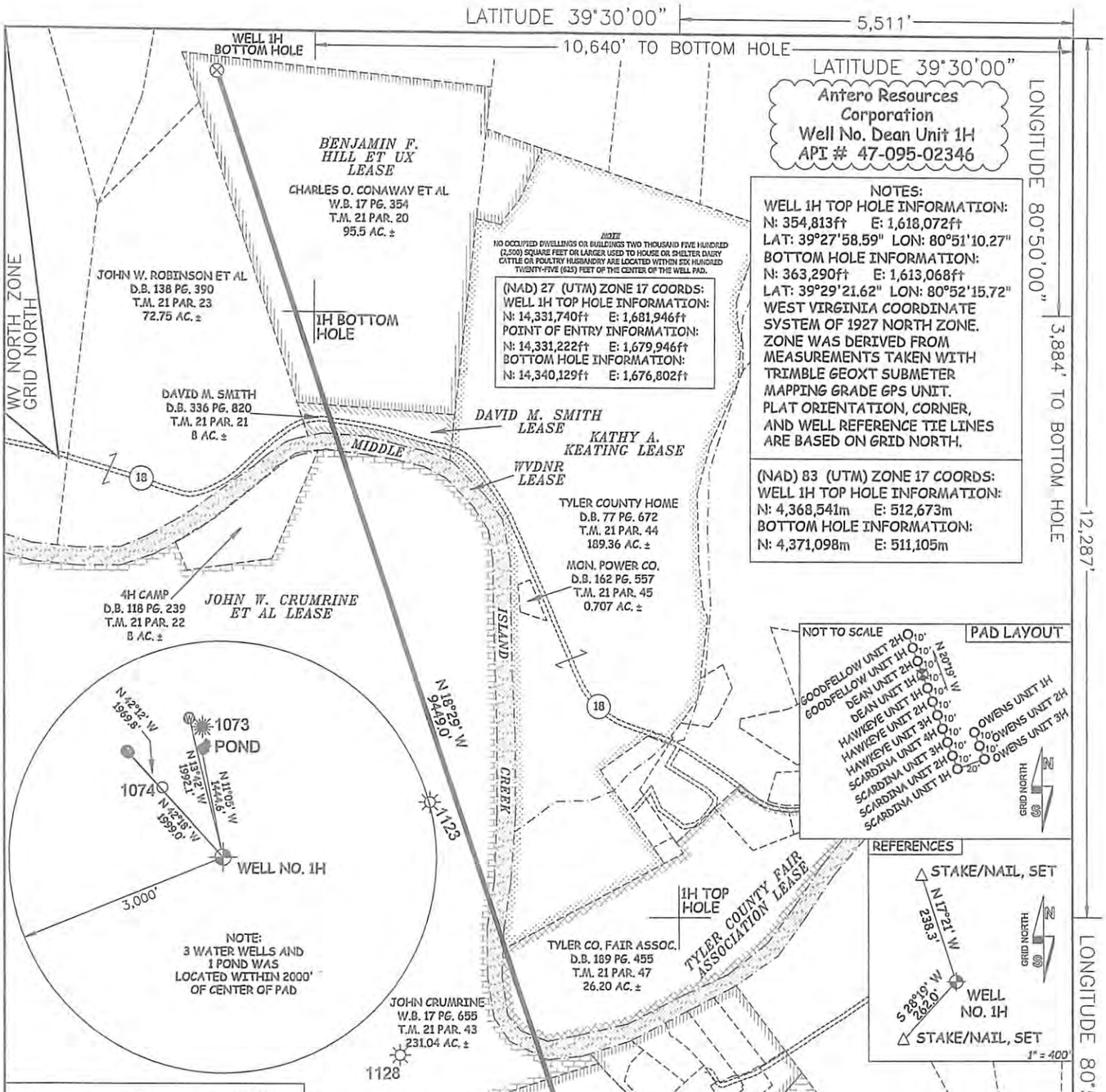
THOMAS SUMMERS P.S. 2109

DATE 05/03/16
OPERATOR'S WELL# DEAN UNIT #1H

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF "GAS") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X
LOCATION: ELEVATION 811 ORIGINAL - 812' AS-BUILT WATERSHED OUTLET MIDDLE ISLAND CREEK
QUADRANGLE SHIRLEY 7.5' DISTRICT ELLSWORTH COUNTY TYLER
SURFACE OWNER EDWIN C. WEIGLE ACREAGE 60.19 ACRES +/-
OIL & GAS ROYALTY OWNER KATHY ANN SEAGO; RICHARD L. SEAGO ET UX; ROBERT L. DEAN; JAMES E. GREGG ET UX; JOHN W. CRUMRINE ET AL; WVDNR; TYLER COUNTY FAIR ASSOCIATION; KATHY A KEATING; DAVID M. SMITH; BENJAMIN F. HILL ET UX LEASE ACREAGE 129.2 AC.±; 74.2 AC.±; 35 AC±; 141 AC±; 256 AC±; 34 AC.±;26.665 AC±; 190.07 AC±; 8 AC±; 95.5 AC±
PROPOSED WORK: DRILL ___ CONVERT ___ DRILL DEEPER X REDRILL ___ FRACTURE OR STIMULATE X
PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION X OTHER PHYSICAL CHANGE IN WELL (SPECIFY) MOD - BHL PLUG & ABANDON CLEAN OUT & REPLUG
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,500' TVD 16,700' MD
WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM
ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD
DENVER, CO 80202 CHARLESTON, WV 25313

FORM WW-6

COUNTY NAME PERMIT



47	095	02346
STATE	COUNTY	PERMIT

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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 # 13-040WA
DRAWING # DEAN1HR
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

THOMAS SUMMERS P.S. 2109

DATE 05/03/16
OPERATOR'S WELL# DEAN UNIT #1H

STATE OF WEST VIRGINIA
DEPARTMENT OF ENERGY
DIVISION OF OIL AND GAS

LEGEND
Surface Owner Boundary Lines +/-
Interior Surface Tracts +/-
Existing Fence
Found monument, as noted

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF "GAS") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X
LOCATION: ELEVATION 811 ORIGINAL - 812' AS-BUILT WATERSHED OUTLET MIDDLE ISLAND CREEK
QUADRANGLE SHIRLEY 7.5' DISTRICT ELLSWORTH COUNTY TYLER
SURFACE OWNER EDWIN C. WEIGLE ACREAGE 60.19 ACRES +/-
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TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,500' TVD 16,700' MD
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ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD
DENVER, CO 80202 CHARLESTON, WV 25313

COUNTY NAME PERMIT

FORM WW-6

95-02346 MOD

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

May 19, 2016

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

Ms. Hankins:

Antero Resources Corporation (Antero) would like to submit the following permit modifications for two approved wells on the Weigle East Pad. We are requesting to extend the horizontal lateral lengths which will change the bottom hole locations of the Dean Unit 1H (API# 47-095-02346) and Dean Unit 2H (API# 47-095-02347).

Attached you will find the following documents:

- REVISED Form WW-6B, which shows the revised lateral lengths, Measured Depths and Production Casing/Cement programs
- REVISED Form WW-6A1, which shows the new leases we will be drilling into
- REVISED Mylar Plats, which shows the new bottom hole locations

If you have any questions please feel free to contact me at (303) 357-7323.

Thank you in advance for your consideration.

Sincerely,

Ashlie Steele

Ashlie Steele
Permitting Supervisor
Antero Resources Corporation

Received
Office of Oil & Gas
MAY 23 2016

Enclosures

EQT Production Company
2400 Zenith Ridge Rd.
Suite 200
Canonsburg, PA 15317
www.eqt.com

Todd Klaner
Manager, Permitting

June 7, 2016

James Martin, Chief
WV Dept. of Environmental Protection
Division of Oil and Gas
601 57th St East
Charleston, WV 25304

RE: Well Permit # 017-06751, 017-06752, 017-06753 & 017-06754
EQT Production Company
Doddridge County

Dear Mr. Martin,

This letter is in response to the comments received by the WVDEP for EQT's CPT10 proposed well pad.

To address the primary concerns:

Public Meeting

There is no plan at this time to hold a public meeting.

Permit Document Issues

The documentation that our surveyor provided to us was non-compliant. The problem has been rectified and we provided the corrected plat to the WVDEP.

Water Well Location and Testing

Sampling typically is initiated much closer to the time that a drill rig is expected to be on site. A 3rd party lab will attempt to make arrangements to sample water supplies prior to the initiation of our operations. WVDEP regulations only require the sampling of water located within 1,500 feet from the center of the proposed well pad; EQT samples up to 2500'. If sampling is refused by the surface owner and later it is suspected that water has been impacted by our drilling operations, it will be up to the surface owner to provide conclusive evidence that a change in the attributes of the water supply is a result of our operations.

Site Plan Issues/Closed Loop Systems

EQT has redesigned the appurtenant features of the CPT10 site, a reduction in the amount of temporary impacts is proposed. Rather than pits, we will be using above ground storage tanks. EQT complies with the Erosion and Sediment Control Standards set forth by the WVDEP. EQT retains responsibility for unintended physical damages to property resulting from our operations although none are expected to occur.

Site Specific Safety Plan

The Safety Plan for the site addresses questions regarding emergency procedures, air quality, flaring, etc., was included in the permit application that was submitted to the WVDEP. Once approved, a copy of this plan will be located at the drillsite.

Roads

EQT will make improvements to the public road prior to beginning operations at the well site. While EQT did consider using McIntire Fork for access, it ultimately concluded that access from McIntire Fork would have increased our

Where energy meets innovation.℠

environmental impacts. A road permit (MM109) has been applied for, a Road Maintenance Bonding Agreement has been signed and EQT is in compliance with the DOH Oil and Gas Policy.

Site Design

The site was designed to utilize existing topography to minimize the necessary earthwork and clearing required to construct and operate the site. We have committed to redesigning some parts of the site that will eliminate the use of pits, as described in the "Site Plan Issues" section of this letter.

Lateral Close to Existing Lateral

The Jay-Bee wellbore is located approximately 462' from the proposed lateral of CPT10H4. EQT geologists perform area studies and plan wells with knowledge of competitor wells. The physical distance between the well bores, the orientation of the wellbores, and the anticipated fracture propagation influence combined with EQT's extensive experience with horizontal drilling agree that there should be no unintended communication between these wells or with any other current or plugged well in the area. EQT owns or has development rights for all leases in which the proposed CPT10 pad and laterals will be located.

Air Quality Concerns

EQT operates consistent with the DEP regulations in regard to air quality.

Ground Water & Surface Water Protection Concerns

As stated above in the Water Sampling paragraph, WVDEP regulations only require the sampling of water located within 1,500 feet from the center of the proposed well pad. Above ground storage tanks will be used instead of pits.

We have revised the previously proposed pond to accommodate enough tankage to manage our water and thus, drill cuttings and flowback water will now be managed without using in-ground pits for storage.

The pad specific hydraulic fracture plan for Ritchie County was created because of the potential communication between deep geologic zones unique to the area of that well pad. These zones do not exist in in this area collaborated with drilling logs from surrounding wells; therefore the plan is not necessary in this area.

Light and Noise

EQT had a Sound Impact Assessment performed by a 3rd party that investigated the anticipated sound impact of drilling and fracturing operations on the CPT10 well pad. The noise levels are not expected to be intrusive. Although a soundwall is not anticipated to be necessary due to the site location and surrounding topography, EQT shall construct various walls as a precaution.

Regards,

Todd Klaner
Manager, Permitting
EQT Production Company

CC:
Well File

EQT Production Company
2400 Zenith Ridge Rd.
Suite 200
Canonsburg, PA 15317
www.eqt.com

Todd Klaner
Manager, Permitting

June 7, 2016

James Martin, Chief
WV Dept. of Environmental Protection
Division of Oil and Gas
601 57th St East
Charleston, WV 25304

RE: Well Permit # 017-06751, 017-06752, 017-06753 & 017-06754
EQT Production Company
Doddridge County

Dear Mr. Martin,

This letter is in response to the comments received by the WVDEP for EQT's CPT10 proposed well pad.

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The documentation that our surveyor provided to us was non-compliant. The problem has been rectified and we provided the corrected plat to the WVDEP.

Water Well Location and Testing

Sampling typically is initiated much closer to the time that a drill rig is expected to be on site. A 3rd party lab will attempt to make arrangements to sample water supplies prior to the initiation of our operations. WVDEP regulations only require the sampling of water located within 1,500 feet from the center of the proposed well pad; EQT samples up to 2500'. If sampling is refused by the surface owner and later it is suspected that water has been impacted by our drilling operations, it will be up to the surface owner to provide conclusive evidence that a change in the attributes of the water supply is a result of our operations.

Site Plan Issues/Closed Loop Systems

EQT has redesigned the appurtenant features of the CPT10 site, a reduction in the amount of temporary impacts is proposed. Rather than pits, we will be using above ground storage tanks. EQT complies with the Erosion and Sediment Control Standards set forth by the WVDEP. EQT retains responsibility for unintended physical damages to property resulting from our operations although none are expected to occur.

Site Specific Safety Plan

The Safety Plan for the site addresses questions regarding emergency procedures, air quality, flaring, etc., was included in the permit application that was submitted to the WVDEP. Once approved, a copy of this plan will be located at the drillsite.

Roads

EQT will make improvements to the public road prior to beginning operations at the well site. While EQT did consider using McIntire Fork for access, it ultimately concluded that access from McIntire Fork would have increased our

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environmental impacts. A road permit (MM109) has been applied for, a Road Maintenance Bonding Agreement has been signed and EQT is in compliance with the DOH Oil and Gas Policy.

Site Design

The site was designed to utilize existing topography to minimize the necessary earthwork and clearing required to construct and operate the site. We have committed to redesigning some parts of the site that will eliminate the use of pits, as described in the "Site Plan Issues" section of this letter.

Lateral Close to Existing Lateral

The Jay-Bee wellbore is located approximately 462' from the proposed lateral of CPT10H4. EQT geologists perform area studies and plan wells with knowledge of competitor wells. The physical distance between the well bores, the orientation of the wellbores, and the anticipated fracture propagation influence combined with EQT's extensive experience with horizontal drilling agree that there should be no unintended communication between these wells or with any other current or plugged well in the area. EQT owns or has development rights for all leases in which the proposed CPT10 pad and laterals will be located.

Air Quality Concerns

EQT operates consistent with the DEP regulations in regard to air quality.

Ground Water & Surface Water Protection Concerns

As stated above in the Water Sampling paragraph, WVDEP regulations only require the sampling of water located within 1,500 feet from the center of the proposed well pad. Above ground storage tanks will be used instead of pits.

We have revised the previously proposed pond to accommodate enough tankage to manage our water and thus, drill cuttings and flowback water will now be managed without using in-ground pits for storage.

The pad specific hydraulic fracture plan for Ritchie County was created because of the potential communication between deep geologic zones unique to the area of that well pad. These zones do not exist in in this area collaborated with drilling logs from surrounding wells; therefore the plan is not necessary in this area.

Light and Noise

EQT had a Sound Impact Assessment performed by a 3rd party that investigated the anticipated sound impact of drilling and fracturing operations on the CPT10 well pad. The noise levels are not expected to be intrusive. Although a soundwall is not anticipated to be necessary due to the site location and surrounding topography, EQT shall construct various walls as a precaution.

Regards,

Todd Klaner
Manager, Permitting
EQT Production Company

CC:
Well File

Adkins, Laura L

From: Adkins, Laura L
Sent: Monday, June 13, 2016 10:05 AM
To: 'Mallory Stanton'
Cc: 'Ashlie Steele'; Dani DeVito (ddevito@pasenergy.com)
Subject: Modifications Weigle East Pad 95-02346 and 95-02347

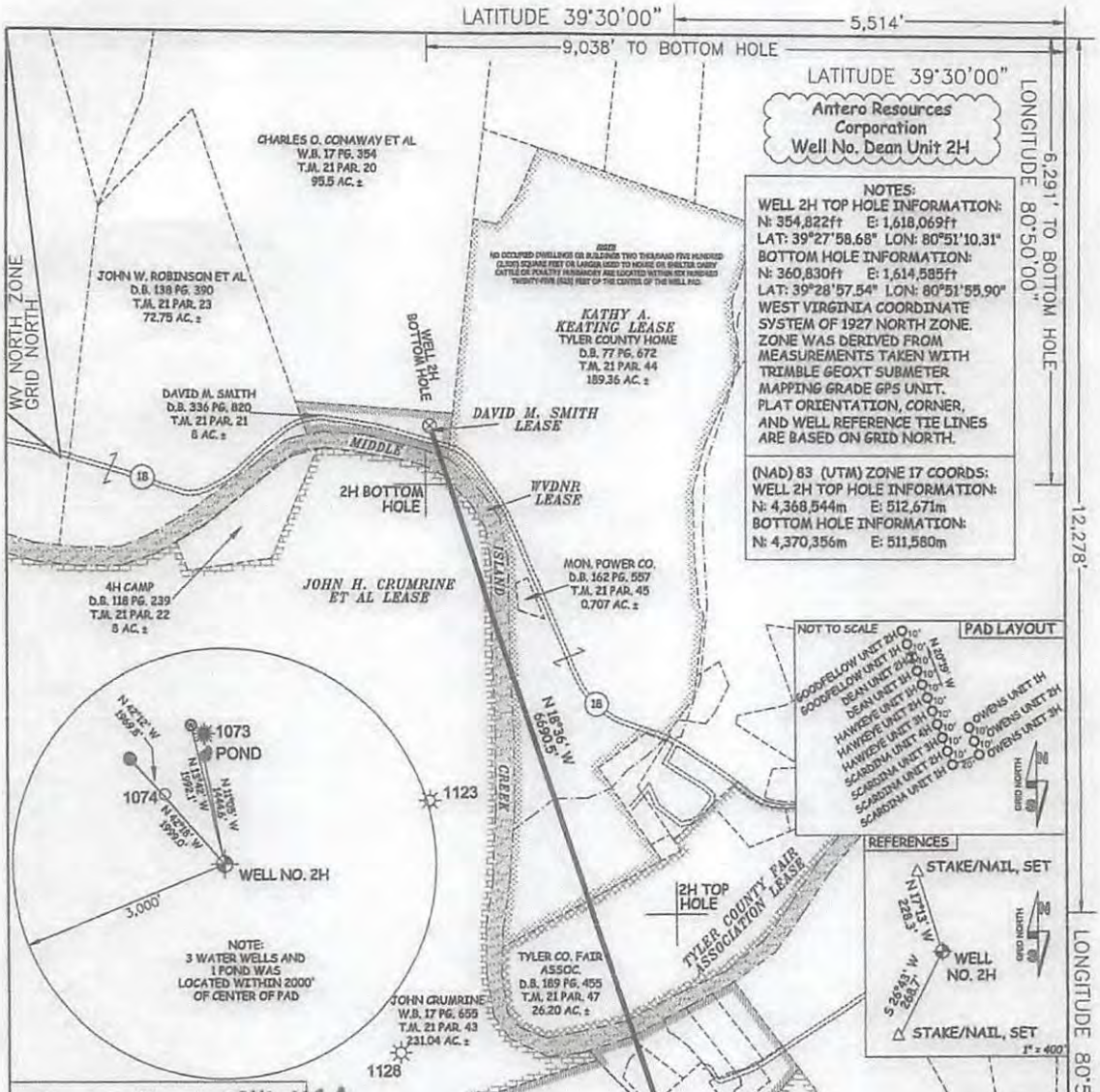
Mallory,

I pulled the Weigle East mods this morning to review and found that two of them have top hole coordinates transposed. Can you please verify the top hole coordinates for the Dean Unit 1H and the Dean Unit 2H.

Thank you,

Laura L. Adkins
Environmental Resource Specialist III
Permit Review
WVDEP Office of Oil and Gas
601 57th Street, SE
Charleston, WV 25304
304-926-0499 ext. 1495

THE ITEMS REQUESTED IN THIS EMAIL WILL NEED TO BE RECEIVED BY THE OFFICE OF OIL AND GAS WITHIN **20 DAYS** TO AVOID THE PERMIT APPLICATION BEING RETURNED. IF AN OPERATOR WISHES TO RESUBMIT AN APPLICATION THAT HAS BEEN RETURNED, THE OPERATOR IS REQUIRED TO COMPLETE AND SUBMIT NEW FORMS, MYLAR PLAT AND ASSOCIATED FEES.



47	095	-2344 H6A
STATE	COUNTY	PERMIT

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 PERSCRIBED BY THE DEPTARTMENT 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 # 13-040WA
DRAWING # DEAN2HSHORTY
SCALE 1" = 1000'
MINIMUM DEGREE OF ACCURACY SUBMETER
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

THOMAS SUMMERS P.S. 2109

STATE OF WEST VIRGINIA
DEPARTMENT OF ENERGY
DIVISION OF OIL AND GAS

DATE 10/30/15
OPERATOR'S WELL# DEAN UNIT 2H

LEGEND
Surface Owner Boundary Lines +/-
Interior Surface Tracts +/-
Existing Fence
Found monument, as noted

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF "GAS") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X
LOCATION: ELEVATION 812 ORIGINAL - 817' PROPOSED WATERSHED OUTLET MIDDLE ISLAND CREEK
QUADRANGLE SHIRLEY 7.5' DISTRICT ELLSWORTH COUNTY TYLER
SURFACE OWNER EDWIN C. WEIGLE ACREAGE 60.19 ACRES +/-
OIL & GAS ROYALTY OWNER KATHY ANN SEAGO; RICHARD L. SEAGO ET UX; ROBERT L. DEAN; JAMES E. GREGG ET UX; WVDNR; TYLER COUNTY FAIR ASSOCIATION; KATHY A KEATING; JOHN H CRUMRINE ET AL; DAVID M. SMITH LEASE ACREAGE 129.2 AC.±; 74.2 AC.±; 35 AC.±; 141 AC.±; 34 AC.±; 26.665 AC.±; 190.07 AC.±; 256 AC.±; 8 AC.±
PROPOSED WORK: DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE X
PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION X OTHER PHYSICAL CHANGE IN WELL (SPECIFY) ___ PLUG & ABANDON ___ CLEAN OUT & REPLUG
TARGET FORMATION MARCELLUS ESTIMATED DEPTH 6,500' TVD, 14,800' MD
WELL OPERATOR ANTERO RESOURCES CORP. DESIGNATED AGENT DIANNA STAMPER - CT CORPORATION SYSTEM
ADDRESS 1615 WYNKOOP STREET ADDRESS 5400 D BIG TYLER ROAD
DENVER, CO 80202 CHARLESTON, WV 25313

FORM WW-6

COUNTY NAME
PERMIT

Received
Office of Oil and Gas
NOV 2 2015
WV Department of Environmental Protection