

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

Harold D. Ward, Cabinet Secretary www.dep.wv.gov

Monday, August 12, 2024 PERMIT MODIFICATION APPROVAL Horizontal 6A / New Drill

ANTERO RESOURCES CORPORATION 1615 WYNKOOP STREET

DENVER, CO 80202

Re:

Permit Modification Approval for ELEXA UNIT 2H

47-095-02888-00-00

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.

Operator's Well Number: ELEXA UNIT 2H

Farm Name: NEIL R STEBBINS

U.S. WELL NUMBER: 47-095-02888-00-00

Horizontal 6A New Drill

Date Modification Issued: 08/12/2024

Promoting a healthy environment.

API NO. 47- 095	_ 02888	3
OPERATOR W	ELL'NO.	Elexa Unit 2H MOD
Well Pad Nar	ne: Starke	y Pad

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

		/
) Well Operator: Antero Resource	ces Corporal 494507062	095-Tyler Lincoln Paden City 7.5
men operator.	Operator ID	County District Quadrangle
2) Operator's Well Number: Elexa		ad Name: Starkey Pad
3) Farm Name/Surface Owner: Nei	I R. Stebbins Public Ro	pad Access: Hamilton Drive
4) Elevation, current ground: 110	Elevation, proposed	d post-construction: 1091'
5) Well Type (a) Gas X	Oil Une	derground Storage
Other		
(b)If Gas Shallov	X Deep	
Horizo	ntal X	
6) Existing Pad: Yes or No Yes		_
7) Proposed Target Formation(s), D	Depth(s), Anticipated Thickness	s and Expected Pressure(s):
Marcellus Shale: 6800' TVD, Antic	cipated Thickness- 55 feet, Asso	ciated Pressure- 2800#
8) Proposed Total Vertical Depth:	6800' TVD /	
9) Formation at Total Vertical Dep		
10) Proposed Total Measured Dept	/	
11) Proposed Horizontal Leg Leng		
12) Approximate Fresh Water Stra		/
13) Method to Determine Fresh W	ater Depths: 47-095-00275	
14) Approximate Saltwater Depths		
15) Approximate Coal Seam Depth	ns: None Identified	
16) Approximate Depth to Possibl	e Void (coal mine, karst, other)): None Anticipated
17) Does Proposed well location c directly overlying or adjacent to an	ontain coal seams n active mine? Yes	No X
(a) If Yes, provide Mine Info:	Name:	
	Depth:	Office of Oil and
CK # 4033944	Seam:	on and Gas
\$ 25000	Owner:	AUG 7 2024
		W Don

WV Department of Environmental Protection

Page 1 of 3

08/16/2024

API NO. 47-_095 __02888

OPERATOR WELL NO. Elexa Unit 2H MOD

Well Pad Name: Starkey Pad

18)

CASING AND TUBING PROGRAM

					The Manager Assessment Control of the Control of th		
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#	100	100	CTS, 89 Cu. Ft.
Fresh Water	13-3/8"	New	J-55	54.5#	514	514	CTS, 536 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#	21000	21000	4364 Cu. Ft
Tubing	2-3/8"	New	N-80	4.7#			
Liners							

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	<u>Cement</u> <u>Yield</u> (cu. ft./k)
Conductor	20"	24"	0.438"	1530	50	Class A/L	~1.18
Fresh Water	13-3/8"	17-1/2"	0.38"	2730	1000	Class A/L	~1.18
Coal	9-5/8"	12-1/4"	0.352"	3520	1500	Class A/L	~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	Principle of the state of the s

API NO. 47- 095 - 02888

OPERATOR WELL NO. Elexa Unit 2H MOD

Well Pad Name: Starkey Pad

19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

Drill, perforate, fracture a new vertical 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): 35.27 acres

14.87 acres 22) Area to be disturbed for well pad only, less access road (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/L cement.

Surface: Class A/L cement with 2-3% calcium chloride and 1/4 lb of flake Intermediate: Class A/L 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.

Office of Oil and Gas

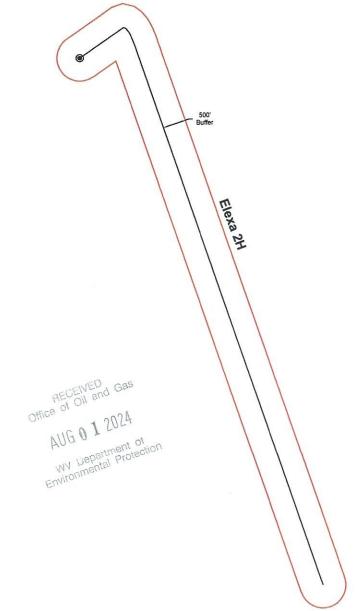
WV Department

LEGEND

- Proposed gas well
- # Existing Well, as noted
- A Digitized Well, as noted



The orientation of this survey is Grid North, and its coordinate base is the West Virginia Coordinate System of 1927, North Zone



Bridgeport Office Phone: (304) 848-5035 Fax: (304) 848-5037

PARTY CHIEF: C. Lynch

RESEARCH: J. Miller

SURVEYED: Dec. 2016

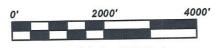
FIELD CREW: C.L., K.M.

SCOPE STATE OF THE STATE OF THE

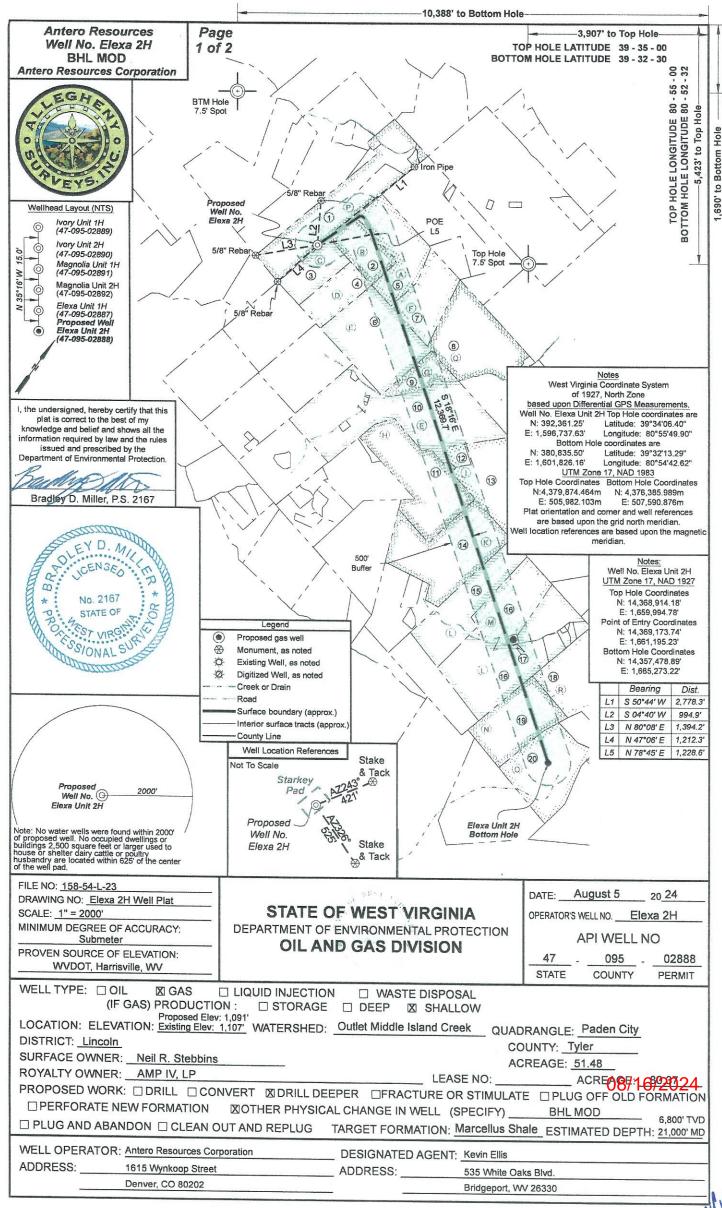
Sheet 1 of 1

172 Thompson Drive Bridgeport, WV 26330

	1 8
J. McNemar	DRAWN BY:
May 29, 2024	PREPARED:
160-54-L-23	PROJECT NO:
Elexa 2H AOR	DRAWING NO:

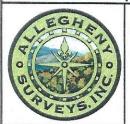


Scale: 1 inch = 2000 feet 08/16/2024



The well

Antero Resources
Well No. Elexa 2H
BHL MOD
Antero Resources Corporation
Page
2 of 2



	Leases
Α	Robert F. & Rita K. Scardina
В	Robert F. & Rita K. Scardina
С	Robert F. & Rita K. Scardina
D	Robert F. & Rita K. Scardina
Е	Earl K. Grimes, et ux
F	BRC Appalachian Minerals I, LLC
G	BRC Appalachian Minerals I, LLC
Н	Breck Minerals, LP
1	BRC Appalachian Minerals I, LLC
K	Ethan A. & Marsh L. Riffle, JTWROS
L	Blanche B. Bailey & Shelby R. Bailey
M	Charles R. Jobes
N	Melodee A. Matheny
0	Heritage Resources-Marcellus, LLC
P	AMP IV, LP
Q	Janet L. Heintzman
R	Diane W. Kestle

ID	TM-Par	Owner	Bk/Pg	Acres
1	5-9.4	Neil R. Stebbins	366/436	51.48
2	5-12	Robert F. & Rita K. Scardina	320/646	25.00
3	5-11	Robert F. & Rita K. Scardina	320/646	25.00
4	5-10	Robert F. & Rita K. Scardina	320/646	25.00
5	5-13	Robert F. & Rita K. Scardina	320/646	46.00
6	9-3	D.E. Grimes & Sons Farm, LLC	209/496	67.00
7	5-18	Melvin S. Stern, et al	155/637	43.50
8	9-5	D.E. Grimes & Sons Farm, LLC	209/496	1.59
9	9-4	Brandon Scott Grimes	637/841	20.00
10	9-16	D.E. Grimes & Sons Farm, LLC	209/496	118.22
11	9-15.1	Larry M. & Betty L. Jochum; Mark Lee Jochum	573/794	75.00
12	9-17.1	James E. Vancamp & Barbie Jean Palmer	318/485	4.91
13	9-17	Ethan A. & Marsha L. Riffle	323/649	90.04
14	9-24	Ethan A. & Marsha L. Riffle	299/26	82.00
15	9-27	Robert Livio Bolner	226/593	59.00
16	9-28	Constance Heintzman	WB43/505	
17	9-29	Russell D. & Mary A. Adams	190/300	1.00
18	9-36	Diane Weaver Clark	WB39/544	
19	13-3	Mark E. Heintzman	221/635	51.96
20	13-8	D.H. Lancaster, Jr.	351/288	52.84

FILE NO: 158-54-L-23 DRAWING NO: Elexa 2H Well Plat SCALE: 1" = 2000' 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:August 5 20 24 OPERATOR'S WELL NOElexa 2H API WELL NO 47 095 02888 STATE COUNTY PERMIT
(IF GAS) PRODUCTION Proposed Eleventh Proposed Work: Neil R. Stebbins ROYALTY OWNER: AMP IV, LP PROPOSED WORK: DRILL CO PERFORATE NEW FORMATION	: 1,091' 1,107' WATERSHED: Outlet Middle Island Creek QUAD	E PLUG OFF 8 PF 92 N 2 TYON BHL MOD
WELL OPERATOR: Antero Resources Co. ADDRESS: 1615 Wynkoop Street Denver, CO 80202		

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:

Applicant claims the right to	O/(10.01) p. 10.01		
Grantor, lessor, etc.	Grantee, lessee, etc.	Royalty	Book/Page
P: AMP IV, LP Lease AMP IV, LP	Antero Resources Corporation	1/8+	231/747
C: Robert F. & Rita K. Scardina Lease Robert F. & Rita K. Scardina	Antero Resources Corporation	1/8+	235/654
B: Robert F. & Rita K. Scardina Lease Robert F. & Rita K. Scardina	Antero Resources Corporation	1/8+	235/654
A: Robert F. & Rita K. Scardina Lease Robert F. & Rita K. Scardina	Antero Resources Corporation	1/8+	235/654
B: Robert F. & Rita K. Scardina Lease Robert F. & Rita K. Scardina	Antero Resources Corporation Office of Oil	and Gas 1/8+	235/654
A: Robert F. & Rita K. Scardina Lease Robert F. & Rita K. Scardina	AUG 0	1/8+	235/654
F: BRC Appalachian Minerals I, LLC Lease BRC Appalachian Minerals I, LLC BRC Working Interest Company LLC Chesapeake Appalachia, LLC Statoil USA Onshore Properties, Inc SWN Exchange Titleholder LLC SWN Production Company LLC Antero Exchange Properties	BRC Working Interest Company LLC Chesapeake Appalachia, LLC Statoil USA Onshore Properties, Inc SWN Exchange Titleholder LLC SWN Production Company LLC Antero Exchange Properties Antero Resources Corporation	1/8 Assignment Assignment Assignment Merger Assignment Merger	369/300 369/784 378/764 470/668 9/404 544/242 525/315
E: Earl K. Grimes, et ux Lease Earl K. Grimes, et ux John Richmond Gas Corporation of WV John Richmond Jack Holden, Driller-Operator Nancy J. Holden Triad Hunter, LLC	John Richmond Gas Corporation of WV John Richmond Jack Holden, Driller-Operator Nancy J. Holden Triad Hunter, LLC Antero Resources Corporation	Assignment Assignment Assignment Assignment Assignment Assignment	210/296 211/149 212/270 212/315 390/758 402/569 496/776
G: BRC Appalachian Minerals I, LLC Lease BRC Appalachian Minerals I, LLC BRC Working Interest Company LLC Chesapeake Appalachia, LLC Statoil USA Onshore Properties, Inc SWN Exchange Titleholder LLC SWN Production Company LLC Antero Exchange Properties	BRC Working Interest Company LLC Chesapeake Appalachia, LLC Statoil USA Onshore Properties, Inc SWN Exchange Titleholder LLC SWN Production Company LLC Antero Exchange Properties Antero Resources Corporation	1/8 Assignment Assignment Assignment Merger Assignment Merger	369/300 369/784 378/764 470/668 9/404 544/242 525/315

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
/	E: Earl K. Grimes, et ux Lease Earl K. Grimes, et ux John Richmond Gas Corporation of WV John Richmond Jack Holden, Driller-Operator Nancy J. Holden Triad Hunter, LLC	John Richmond Gas Corporation of WV John Richmond Jack Holden, Driller-Operator Nancy J. Holden Triad Hunter, LLC Antero Resources Corporation	Assignment Assignment Assignment Assignment Assignment Assignment	210/296 211/149 212/270 212/315 390/758 402/569 496/776
1	1: BRC Appalachian Minerals I, LLC Lease BRC Appalachian Minerals I, LLC BRC Working Interest Company LLC Chesapeake Appalachia, LLC Statoil USA Onshore Properties, Inc SWN Exchange Titleholder LLC SWN Production Company LLC Antero Exchange Properties	BRC Working Interest Company LLC Chesapeake Appalachia, LLC Statoil USA Onshore Properties, Inc SWN Exchange Titleholder LLC SWN Production Company LLC Antero Exchange Properties Antero Resources Corporation	1/8 Assignment Assignment Assignment Merger Assignment Merger	369/300 369/784 378/764 470/668 9/404 544/242 525/315
/	H: Breck Minerals, LP Lease Breck Minerals, LP	Antero Resources Corporation	1/8+	306/62
/	K: Ethan A. & Marsh L. Riffle, JTWROS Lease Ethan A. & Marsh L. Riffle, JTWROS	Antero Resources Corporation Office of Oil Antero Resources Corporation	1/8+	236/369
/	L: Blanche B. Bailey & Shelby R. Bailey Lease Blanche B. Bailey & Shelby R. Bailey Triad Hunter, LLC Blue Ridge Mountain Resources, Inc Eclipse Resources I, LP SWN Production Company	Triad Hunter, LLC Blue Ridge Mountain Resources, Inc Eclipse Resources I, LP SWN Production Company Antero Resources Corporation	Assignment Assignment Assignment Assignment Name Change Assignment	380/210 104/354 104/357 WVSOS 235/291
,	M: Charles R. Jobes Lease Charles R. Jobes EOG Resources, Inc PC Exploration, Inc Phillips Exploration, Inc Chesapeake Appalachia, LLC Statoil USA Onshore Properties Inc Antero Exchange Properties	EOG Resources, Inc PC Exploration, Inc Phillips Exploration, Inc Chesapeake Appalachia, LLC Statoil USA Onshore Properties Inc Antero Exchange Properties Antero Resources Corporation	1/8 Assignment Merger Assignment Assignment Assignment Merger	353/284 357/210 WVSOS 375/312 381/524 544/291 525/315

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 –

- 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
L: Blanche B. Bailey & Shelby R. Bailey Lease Blanche B. Bailey & Shelby R. Bailey Triad Hunter, LLC Blue Ridge Mountain Resources, Inc Eclipse Resources I, LP SWN Production Company	Triad Hunter, LLC Blue Ridge Mountain Resources, Inc Eclipse Resources I, LP SWN Production Company Antero Resources Corporation	1/8 Assignment Assignment Name Change Assignment	380/210 104/354 104/357 WVSOS 235/291
N: Melodee A. Matheny Lease Melodee A. Matheny	Antero Resources Corporation	1/8+	557/713

*Cotenancy Utilization - Antero is utilizing the Co-tenancy Modernization and Majority Protection Act to proceed with development of certain royalty owners' interests in this tract.

**Pooling/Unitization – Antero has filed a horizontal well unitization application with the West Virginia Oil and Gas Conservation Commission that seeks to pool certain owners in this tract

RECEIVED Office of Oil and Gas

AUG 0 1 2024

WV Department of Environmental Protection

^{*}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.

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
O: Heritage Resources Marcellus, LLC Lease Heritage Resources Marcellus, LLC Antero Resources Corporation			1/8+	640/592



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:	Tim Rady	Confledy
Its:	Senior Vice President of Land	

Page 4 of 4