

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

April 15, 2014

WELL WORK PLUGGING PERMIT

Plugging

This permit, API Well Number: 47-4302961, issued to CHESAPEAKE APPALACHIA, L.L.C., is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to all conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas inspector.

Upon completion of the plugging well work, the above named operator will reclaim the site according to the provisions of WV Code 22-6-30. The above named operator will also file, as required in WV Code 22-6-23, an affidavit on form WR-38 by two experienced persons in the operator's employment and the Oil and Gas inspector that the work authorized under this permit was performed and a description given. Failure to abide by all statutory and regulatory provisions governing all duties and operations here under may result in suspensions or revocation of this permit and in addition may result in civil and/or criminal penalities being imposed upon the operator.

This permit will expire in two (2) years from date of issue. If there are any questions, please free to contact me at (304) 926-0499 ext. 1654.

Lan

James Martin

Chief

Operator's Well No: 823208

Farm Name: COLEGROVE, ARCH

API Well Number: 47-4302961

Permit Type: Plugging Date Issued: 04/15/2014

PERMIT CONDITIONS

West Virginia Code § 22-6-11 allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

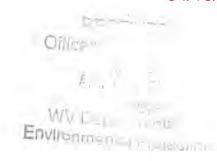
CONDITIONS

- 1. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
- 2. In the event of an accident or explosion causing loss of life or serious personal injury in or about the well or while working on the well, the well operator or its contractor shall give notice, stating the particulars of the accident or explosion, to the oil and gas inspector and the Chief within twenty-four (24) hours.
- 3. Well work activities shall not constitute a hazard to the safety of persons.

FORM WW-4 (B) Observe File Copy (Rev. 2/01) 1) Date: 4/2/2014 2) Operator's Well No. 823208 P&A 3) API Well No. 47-043-02961

live	2017		DEPARTM	ENT OF ENV	WEST VIRG IRONMENTA F OIL AND G	AL PROTE	ECTION		
4)	Well Type:	Oil	APPLICATIO Gas	N FOR A PER	RMIT TO PLU			ste disposal	
4).		the second second second	or Undergroun			eep	_ vva:	Shallow	Х
5)	Location:	Elevation _ District	1,096' Laurel Hill	Watershed County	Lincoln		Branch of T	enmile Creek Ranger,	WV 7.5'
6)	Well Operator Address	P.O. Box 1	05 ke Appalachia 8496 City, OK 731		7) Designat Address	ed Agent	Eric B. Gil P.O. Box 6 Charleston	lespie	368
8)	Address 5539	pector to be in the firiplett McClellan Highland, WV	ighway		9) Plugging Name Address	P.O. Box	ake Appalac		
				See Attached S	Sheet				
Not	ification must be	given to the o	listrict oil and	gas inspector 2	24 hours before	epermitted	work can co	mmence.	
Wo	rk Order approve	d by Inspecto	r Age	D. Try	NEW Y		()	Date Opr	2 9, 2014

04/18/2014



47-043-02961

823208 P&A PROCEDURE

- 1) Prepare road and location, MIRU service rig
- 2) Either:
 - A) Set CIBP at 2880', spot 100' cement plug 2880'-2780', load hole with gel or
 - B) Run W.S. to 3000', load hole with gel, pull W.S. to 2900', spot 100' cement plug 2900'-2000' 2000'
- 3) Pull or run W.S. to 2475', spot 125' cement plug 2475'-2350', pull W.S.
- 4) Cut 4 1/2" at free-point (approximately 2060') and pull
- 5) Run W.S. to 2060', load hole with gel
- 6) Spot 100' cement plug 2060'-1960', pull W.S. to 1900'
- 7) Spot 100' cement plug 1900'-1800', pull W.S. to 1715'
- 8) Spot 100' cement plug 1715'-1615', pull W.S. to 1200'
- 9) Spot 100' cement plug 1200'-1100', pull W.S. to 950'
- 10) Spot 100' cement plug 950'-850', pull W.S. to 310
- 11) Spot 130' cement plug 310'-180', pull W.S. to 150'
- 12) Spot 150' cement plug 150' surface
- 13) Pull W.S. and top off with cement
- 14) Erect monument and reclaim as prescribed by law



	CENTED Mental Protectio, State of	West Virgini	a		
Office of	State of Properties, State of Env Section of Env Section of Sectio	f Oil and Gas	orecrion		
	"" Gag Well Operator'	s Report of W	Work Work		
Farm name:	COLEGROVE, ARCH	Operator	Well No.:	23208	
LOCATION:	Elevation: 1,099,14 Q	madrangle: RA	INGER		
	District: LAUREL HILL Latitude: 4350 Feet Longitude 4400 Feet	South of 38 West of 82	ounty: LINC Deg. 7 Min Deg. 12 Mi	OLN . 30 Sec. n. 30 Sec	
	LUMBIA NATURAL RESOURCE		Used in	Left	10
	O. BOX 6070 ARLESTON, WV 25362-0000	δ.		The state of	Cement Fill U
Agent: W.	A. WATSON, JR.		Drilling	in Well	Cu. Ft
	DAVE BELCHER	Size		French 1	
Permit Iss	ued: 07/07/97	9 5/8"	354	354	165
Well work	Completed: 10/6/97				
Verbal Plus Permission	granted on:		1663	1663	352
Total Dept	granted on: Cable Rig h (feet) 5719 r depths (ft) 219	41"		3683	183
Salt water	depths (ft) /780				
	ing mined in area (Y/N): s (ft):	7 <u>N</u>			
OPEN FLOW	DATA	1			
	cing formation DEVONIA	N SHALE MCF/d Oil: In MCF/d F	Pay zone nitial oper inal open i	depth (ft) 1895'-3 Bb1 Bb1 72 Hou
Produ Gas:	cing formation DEVONTA Initial open flow Final open flow 103 Time of open flow betwee c rock Pressure 240	en initial and psig (surface	e pressure)	after	12 HOU
Produ Gas: Stati	C TOCK PIESBULE 240	Thate (Buttace	e bressure)	arcer)Bb1
Produ Gas: Stati Secon Gas:	Final open flow 103 Time of open flow between crock Pressure 240 d producing formation Initial open flow Final open flow Time of open flow between crock Pressure	MCF/d Oil: In MCF/d F. en initial and	Pay zone mitial oper inal open f d final tes	depth (ft n flow flow sts	Bb1 Bb1 Hou
Produ Gas: Stati Secon Gas: Stati NOTE: ON B INTERVALS, LOG WHICH	d producing formation	MCF/d 0il: In MCF/d F En initial an psig (surface THE FOLLOWIN TING, PHYSIC LED GEOLOGIC	Pay zone nitial oper inal open i d final tes e pressure	depth (ft flow flow sts after	Bbl Bbl Hou Hou
Produ Gas: Stati Secon Gas: Stati NOTE: ON B INTERVALS, LOG WHICH	d producing formation Initial open flow Final open flow Time of open flow betwee C rock Pressure ACK OF THIS FORM PUT FRACTURING OR STIMULAT IS A SYSTEMATIC DETAIL COAL ENCOUNTERED BY THE	MCF/d Oil: In MCF/d Fen initial ampsig (surface) THE FOLLOWING TING, PHYSIC LED GEOLOGIC WELLBORE.	Pay zone mitial oper inal open id d final tes e pressure) G: 1). DET AL CHANGE, AL RECORD	depth (ft in flow flow sts after FAILS OF P ETC. 2). OF ALL FO	Bb1 Bb1 Hou
Produ Gas: Stati Secon Gas: Stati NOTE: ON B INTERVALS, LOG WHICH	d producing formation Initial open flow Final open flow Time of open flow betwee C rock Pressure ACK OF THIS FORM PUT FRACTURING OR STIMULAT IS A SYSTEMATIC DETAIL COAL ENCOUNTERED BY THE	MCF/d 0il: In MCF/d F En initial an psig (surface THE FOLLOWIN TING, PHYSIC LED GEOLOGIC	Pay zone mitial oper inal open id d final tes e pressure) G: 1). DET AL CHANGE, AL RECORD	depth (ft in flow flow sts after FAILS OF P ETC. 2). OF ALL FO	Bbl Bbl Hou Hou

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/V Department of mental Protection

	THE PARTY	23.		
PERFORATIONS:				
Stage I, Perforations:	45 holes fro	om _2895'	_to _ 34921	
Stage 2, Perforations:	holes fro	omm	_to	
Stage 3, Perforations:	holes fro	mm	_to	
Stage 4, Perforations:	holes fro	m	_to	
RACTURING:				
	1 ST STAGE:	DEVONTAN S	SHALE	
Perforations from	2895 - 3492'	_, Acid	yal.	
Perforations from Breakdown @ATP 1952 PSI, Total N ₂ 1,610,3	2895 - 3492' 1725 PSI, Avg. I Total H ₂ 0 100 Scf. I.S.I.P.	, Acid Rate _49, 25 Bbl., Total 	sand i 15 min	# 718 psi
ATP 1952 PSI. Total N ₂ 1,610,3	Total H ₂ 0 500 _ Scf. I.S.I.P. 2ND STAGE:	Bbl., Total 1150 ps.	sand £15 min	718 psi
Perforations from Breakdown @_ATP_PSI.	Total H ₂ 0 500 _ Scf. I.S.I.P.	Bbl., Total 1150 pss _, Acid Rate Bbl., Total	galgand	# . 718 psi
Perforations from Breaktown @ _ ATP PSI, Total N ₂ PSI, Total N ₂	Total H ₂ 0 100 Scf. I.S.I.P. 2ND STAGE: PSI, Avg. I	Bbl., Total 1150 pss _, Acid Rate Bbl., Total	gal BPM, sand15 min	# . 718 psi
Perforations from Breakdown @_ ATP PSI, Total N ₂ Perforations from Breakdown @_ ATP PSI, Total N ₂ Perforations from Breakdown @_ ATP PSI, TP PSI, TRUE TO THE TOTAL TO TH	Total H ₂ 0 Scf. I.S.I.P. 2ND STAGE: PSI, Avg. Total H ₂ 0 Scf. I.S.I.P.	Bbl., Total 1150 pss _, Acid Rate Bbl., Total _, Acid Rate Bbl., Total	gal	#
Perforations from Breaktiown @ ATP PSI, Total N ₂ Perforations from Breakdown @ ATP PSI, Total N ₂ PSI,	Total H ₂ 0	Bbl., Total 1150 psi Acid Rate Bbl., Total , Acid Rate Bbl., Total	gal	#
Perforations from Breakdown @_ATPPSI, Total N ₂ PSI, Total N ₂	Total H ₂ 0 300 Scf. I.S.I.P. 2ND STAGE: PSI, Avg. I Total H ₂ 0 Scf. I.S.I.P. 3RD STAGE: PSI, Avg. I Total H ₂ 0 Scf. I.S.I.P.	_, Acid Rate Bbl., Total	gal gal BPM, sand 15 min gal BPM, sand 15 min	#

04/18/2014

PH Office



Well 823208 API 47-043-02961

Well Completion Data

CNR Well #: 23208 Permit #:

County: Lincoln
District: Washington
Prospect: Boone Block
Field: Ivey Branch

	Тор		Base
Sand/Shale	0		925
Salt Sand	925		1230
Maxon Sand	1230		1620
Little Lime	1620		1655
Greenbrier Limestone	1655		1820
McCrady	1820		1885
Blq Injun	1885		1895
Pocono Shale	1895		2430
Berea Sand	2430		2495
Upper Devonlan	2495		3245
Lower Huron Shala	3245	4	3545
Olantangey Shale			4
Rhinestreet Shale		-	

1	Depth	Mcf
Show Gas 1	2435	
Show Gas 2		
Show Gas 3		
Show Gas 4		Ĺ.
Show Oil 1		
Show Oil 2		
Show Oil 3		
Show Water		

Intermediate Csg	1673	
Logger TD	3719	
Formation @ TD	Lower Huron	

Logging Suite: GR, LDT, CNL, DI, T, A TD to intermediate casing point, GR to surface. Memory PL as neede Logging Date: 9/5/97

Monday, December 08, 1997

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04/18/2014

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WV Department of mmental Protection

WW4-A	
Revised	
2/01	

My Commission Expires

1) Date: 4/2/2014 2) Operator's Well No. 823208 P&A 47-043-02961 3) API Well No.

STATE OF WEST VIRGINIA - BUREAU OF ENVIRONMENT DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS

		NOTICE OF APP	PLICATION TO PLU			
1)	Surface Ow	ner(s) to be served:	/	5) Coal Operato		/
	(a) Name	Arch Colegrove	/	(a) Name	New Eagle Mining Corp.	1
	Address	C/O Norma Lambert	_	Address	P.O. Box 1048	-
		6217 Division Road	_		Holden, WV 25625	
		Huntington, WV 25705	_		Additional to the second	
			_	Coal Owner(s	s) with Declaration	1
	(b) Name			(b) Name	Pocahontas Land Corporation	V
	Address			Address	800 Princeton Avenue	
			=		Bluefield, WV 24701	
			_			
	(c) Name			Name		
	Address		_	Address		-
				Coal Lesse	e with Declaration	1
3)	Inspector	Ralph Triplett		(c) Name	Rockspring Development, Inc.	V
10	Address	5539 McClellan Highway				
	30000000	Branchland, WV 25506		- 11111	East Lynn, WV 25512	
	Talanhana	304-389-0350	_			_
	Telephone	304-389-0350	_			
	(2) The plat (s) The reason you instructions or Take notice th Notice and Ap Oil and Gas, V attached Appli mailed by regi	the well its and the plugging work or surveyor's map) showing the well local pureceived these documents is that you the reverses side. However, you are at under Chapter 22-6 of the West Vaplication and accompanying documents. West Virginia Department of Environment of Environ	ation on Form WW-6. you have rights regarding to take a first and required to take a first and a firs	iny action at all. signed well operator and abandon a well respect to the well al of the Notice, the App	proposes to file or has filed the with the Chief of the Office of the location described on the plication, and the plat have been	
	Cur	mmmmm	Well Operator:	Chesapeake Appal	lachia, L.V.	
	3	Official Seal Notary Public Bate of West Virginia	By:	West	Mulle	
	C. E. B.	Phyllis A. Copley	Its:	Manager - Operation	ons, Appalachia South	
	\$ £.(3)0	144 Willard Circle Hurricane, WV 25525	Address:	P.O. Box 18496		
	5 6	My Commission Expires	nes no askati	Oklahoma City, Ok	73154-0496	
	Em	September 16, 2018	Telephone:	405-935-4073		
Sub	oscribed and swe	orn before me this 3rd day	y of April	the year of	2014	
-		Thu	an a. Cis	cut 1	Notary Public	
Му	Commission Ex	pires Ser	otember 16, 2018	U		

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API 47-043-02961 U.S. Postal Service TM CERTIFIED MAIL, RECEIPT 2821 (Domestic Mail Only; No Insurance Coverage Provided) 1060 For delivery information visit our website at w w.usps.com EAST LYNN MY 25512 6644 \$2.03 0523 Postage Certified Fee \$3.30 01 0000 Return Receipt Fee (Endorsement Required) 12.70 Here Restricted Delivery Fee (Endorsement Required) \$0.00 BHFD Total Postana & Fans S \$8.03 04/09/2014 Sent To 7072 823206 P&A, 823208 P&A Rockspring Development, Inc. or PO Bo P.O. Box 390 City, Stat East Lynn, WV 25512 U.S. Postal Service 114 CERTIFIED MAIL RECEIPT 2791 (Domestic Mail Only; No Insurance Coverage Provided) For delivery information visit our website HOLDEN WY 25625 9944 \$2.03 0523 Postage Certified Fee \$3.30 01 0000 Return Receipt Fee (Endorsement Required) Postmark \$2.70 Restricted Delivery Fee (Endorsement Required) \$0.00 346 Total Postage & Face | & \$8.03 04/09/2014 Sent To 7012 823206 P&A, 823208 P&A Street, Apt. No or PO Box No. New Eagle Mining Corp. P.O. Box 1048 City, State, ZIF Holden, WV 25625 U.S. Postal Service IM CERTIFIED MAIL. RECEIPT 2814 (Domestic Mail Only; No Insurance Coverage Provided) For delivery information visit our BLUEFIELD ALL 24701 具月 HHHH \$2.03 0523 Postage Certified Fee \$3.30 01 Postmark Return Receipt Fee (Endorsement Required) 12.70 Here Restricted Delivery Fee (Endorsement Required) \$0.00 3460 \$8.03 04/09/2014 7012 823206 P&A, 823208 P&A Street, Ap Pocahontas Land Corp. 800 Princeton Avenue City, State Bluefield, WV 24701 RECEIVED ice of Oil and Gas U.S. Postal Service TM CERTIFIED MAIL. RECEIPT (Domestic Mail Only; No Insurance Coverage Provided) 108 1 0 2014 807 For delivery information visit our website at www.usps.com -sogniment of П HUNTINGTON MV 25705 A Environmental Protection 6644 \$1.40 0523 Postage \$3.30 01 Certified Fee 0000 04/18/2014 \$2.70 Restricted Delivery Fee Endorsement Required) \$0.00 346D \$7.40 04/09/2014 7012 823208 P&A Street Apt. Arch Colegrove or PO Box I C/O Norma Lambert City, State, 6217 Division Road Huntington, WV 25705

Form WW-9 Rev. 02/01

Page	of
API Number	47-043-02961
Operator's Well No.	823208 P&A

STATE OF WEST VIRGINIA

DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS CONSTRUCTION AND RECLAMATION PLAN AND SITE REGISTRATION APPLICATION FORM GENERAL PERMIT FOR OIL AND GAS PIT WASTE DISCHARGE

Operator Name	Chesapeake /	Appalachia, L.I	L.C.	OP Code 49	4477557	
Watershed	Plum Branch	of Tenmile Cre	ek	Quadrangle _	Ranger	, WV 7.5'
Elevation1,0	96'	County _	Lincoln	Dis	strict	Laurel Hill
Description of antici	pated Pit Waste:	Plugging Ret	urns/Cement			
Will a synthetic liner	be used in the pit	Yes	20 M	L		
Proposed Disposal	X Land Ap Undergr Reuse (a	plication ound Injection (at API Number_ Disposal (Supp	UIC Permit Nu ly form WW-9 t	ımberfor disposal locati) on)	
Proposed Work For	Which Pit Will Be Drilling Workove Swabbin X Plugging Other (E	er g)	
issued on Decemb understand that the permit and/or other I certify under p this application for for obtaining the in	yped Name)	ce of Oil and Gas of the control of	of the West Virginia by law. Violations inforcement action, ined and am familia sed on my inquiry true, accurate, and g the possibility of	Department of Envir of any term or condition ar with the information of those individuals in I complete. I am awa	onmental Pro on of the gen submitted on mediately re re that there	tection. I eral n sponsible
Subscribed and swe	orn before me this	3rd day of	April			otary Public.
My Commission Ex	pires Septe	mber 16, 2018			Pft	fficial Seal Notary Public State of West Virginile VILIS A. Copley and Circle Huntleane, WW 25526 by Commission Expires

Attachment #1

API #: 47-043-02961 Operator's Well No. 823208 P&A

•	LECEND					
Property Boundary	Diversion contraction of the Con					
Rond = = = = = = = = = = = = = = = = = = =	Spring					
Existing Fence — X — X — X —	Wet Spot					
Planned Fence / / /	Drain Pipe with size in inches (3)					
Stream A.	Waterway \longleftrightarrow					
Open Ditch	Cross Drain					
Rock 65566	Artificial Filter Strip					
North N	Pit: cut walls					
Buildings	Pit: compacted fill walls					
Water wells W	Area for Land Application of Pit Waste					
Drill site						
Proposed Revegetation Treatment: Acres Disturbe	ed 1.0 Prevegetation pH 6.1					
Lime3	Tons/acre or to correct to pH6.5					
Fertilizer (10-20-20 or equivalent) 1/3 TO	N lbs/acre (500 lbs minimum)					
Mulch Hay 2	2_Tons/acre					
\$	Seed Mixtures					
Area I	Area II					
Seed Type Ibs/acre KY-31 40	Seed Type Ibs/a	cre				
KY-31 40 ALSIKE CLOVER 5	ORCHARD GRASS 15 ALSIKE CLOVER 5					
ANNUAL RYE 15	ALSIKE CLOVER 5					
Attach:						
Drawing(s) of road, location, pit and proposed area fo	or land application.					
Photocopied section of involved 7.5' topographic she	et.					
Plan Approved by: Ralph D. Triple						
Fitle: District Inspector						
115 MISCONIC TO MISCONIC TO THE PERSON OF TH						
Date: <u>April 9, 2014</u>						

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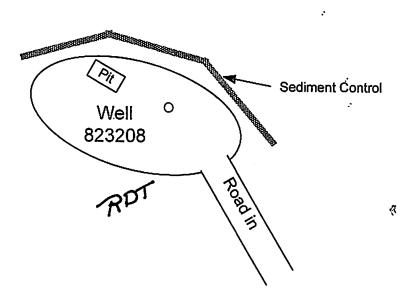
WV Department of onmental Protection

CHESAPEAKE APPALACHIA, L.L.C. 470430296 19

Diagram of Well 823208 Location API 47-043-02961 Field Office - Branchland County -Lincoln

> Surface Owner: Arch Colegrove





GENERAL NOTES

This drawing is a schematic representation of the well site and access road. Proposed structures such as well site, drilling pit, roadways, culverts sediment barriers etc. are shown in approximate pre-planning configurations.

All culvert pipes will be a minimum of 15 inches in diameter. All culvert pipes installed will be accompanied by an entrance sump with dimensions no less than 3 feet (width) x 3 feet (length) x 4 feet (deep). Culverts will be installed at an angle to ensure proper flow. The out fall of culverts will be protected from erosion and sedimentation using large rocks or other sediment controls deemed necessary in the prevention of erosion and sedimentation. Storm water from the ditches to the culverts will be directed to stable natural vegetative areas. Where culverts are not practical, operator will have other sediment control in place to minimize erosion and sedimentation.

Cross drains, broad based dips, water bars, and diversion ditches will be employed during the construction phase. These erosion and sediment control structures will be used to control erosion and sedimentation during the construction phase, where applicable and areas that will allow. These structures will be considered permanent and used as such.

Permanent seeding: See Attachment #1

Site Plan

Prepared by: Kris Aldridge

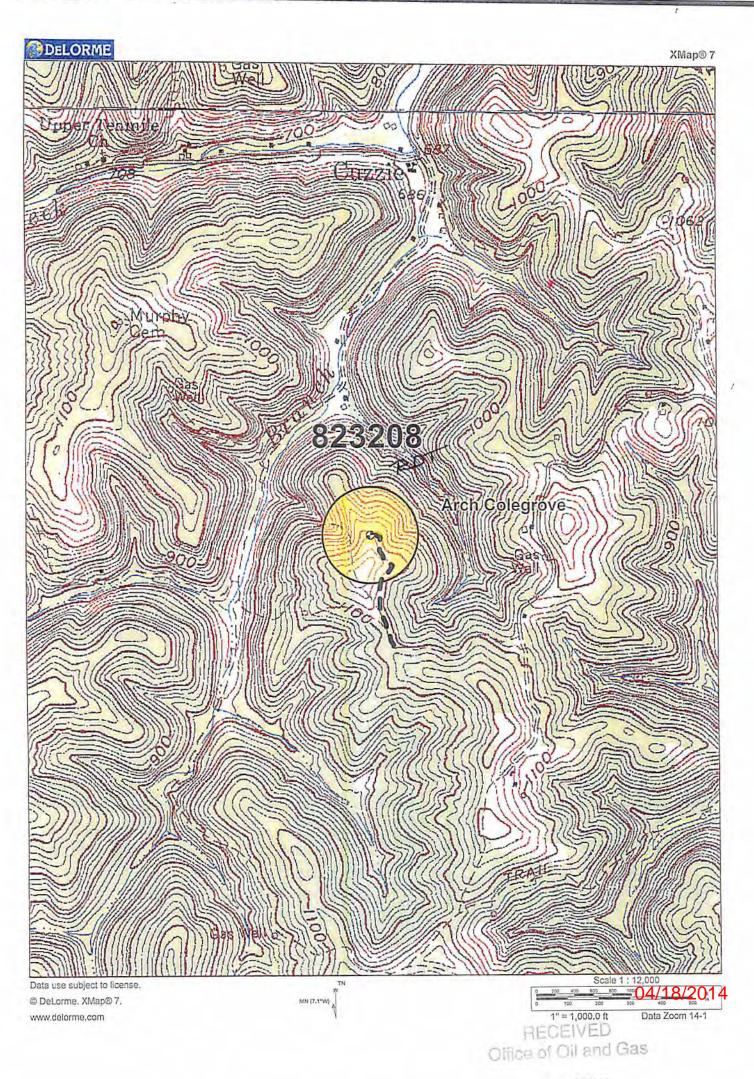
Date: 4/9/2014

No Scale

04/18/2014

CHESAPEAKE APPALACHIA, L.L.C. 4704302961P

Topographic Map of Access and Well 823208 Location API 47-043-02961 Field Office - Branchland County -Lincoln



APR 1 0 2014

Chesapeake Energy Corporation - Eastern Division
P.O. Box 579 • 8165 Court Avenue • Hamlin, WV 25523 V Department of
304.824.5141 • fax 304.824.2247

