

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

March 18, 2014

WELL WORK PLUGGING PERMIT

Plugging

This permit, API Well Number: 47-9901949, 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.

Chief

James Martin

Operator's Well No: 823442

Farm Name: COLUMBIA NATURAL RESOURC

API Well Number: 47-9901949

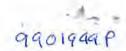
Permit Type: Plugging Date Issued: 03/18/2014

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	

1) Date:	2/13/2014
Operator's Well No.	823442 P&A
3) API Well No.	47-099-01949

			DEPARTME	NT OF ENV	IRO	NMENTA	L PROTE	ECTION			
				OFFICE O	FO	IL AND G	AS				
4)	Well Type: (Is Gas, P	Oil X	APPLICATION Gas or Underground	X		quid injection			aste disposal Shallow	X	
5)	Location:	Elevation District	983' Stonewall 5	Watershed County	_	Wayne	the second second	ens Fork of adrangle	Kiahs Creek Kiahsville	e, WV 7.5	421
6)	Well Operato Address	P.O. Box	ake Appalachia 18496 a City, OK 7315		7)	Designate Address	ed Agent	P.O. Box Charlesto		=	
8)	Name Je Address P.	remy James O. Box 147 na, WV 25545			9)	Plugging Name Address	P.O. Box	eake Appala 18496	73154-0496		
			S	ee Attached S	Shee	t				#10	5122 10'00
									RECE	EIVEO Oil and G	ias
									FEB 2	4 2014	
								(E)	WV Dep invironmen	artment ital Prote	of action
Not	ification must	be given to the	e district oil and g	gas inspector 2	24 h	ours before	e permitted	l work can c	ommence.		
Wo	rk Order appro	oved by Inspec	ctor 4			_			Date	-21-	14

State of West Virginia Division of Environmental Protection Section of Oil and Gas

Well Operator's Report of Well Work

rarm name:	COLUMBIA NATURA	L RESOURCE Operator	. Mell No.:	823442	
LOCATION:	Elevation: 977.	00 Quadrangle: K	CIAHSVILLE		
	District: STON	PWALL			
	Latitude: 5850	Feet South of 38	County: WAYN	E 20 0	
	Longitude 3700	Feet West of 82	Deg. 2 Min	. 30 Sec.	
Company			20g. 15 ML	0 560	
	UMBIA NATURAL RE O. BOX 6070		Used in		
	RLESTON, WV 253	62-0000 &	used in	Left	Cement
*****			Drilling	in Well	Fill Up
Agent: W.	A. WATSON, JR.			1 TH WELL	
Inspector:	DAVE BELCHER	Size			
Permit Teem	ad: 09/1	2/98			
Well work Co	ommenced: 10/01	198 -9-5/8	263	263	_142
Well work Co	ompleted: 11/23	198		1	1
Verbal Pluge	ging		1 1591	Market N	5007
Permission of	granted on:			1591	360
Rotary X Total Depth		g			
Total Depth	(feet)3550	4 1/2	i same	3537	011
riesh water	depths (ft) NA				266
Salt water o	lepths (ft) NA				
-					
Is coal bein	ng mined in area	(Y/N)? <u>y</u>			
Coar Depths	(ft):NA				
		1			
OPEN FLOW DA	TA				
		Devanian Shale - MCF/d Oil: In			
Produci	ng formation	Devonian Shale	_Pay zone d	epth (ft)	3025-350
Gas: In	itial open flow-	MCF/d Oil: In	nitial open	flow -	Bb1/c
1.1	nat open tipe	IOA MURZO RO	inal onen ti	Otex	Db1/a
1.1	me or open from	Detween initial and	I final test	2 10	Univer
Statit	TOCK Flessure 31	5 psig (surface	e pressure)	after	Hours
Second	producing format	ion	Pay zone d	onth (ft)	
Gas: In	itial open flow	MCF/d Oil: Ir	itial open	flow	Bb1/d
Fi	nal open flow	MCF/d Fi	nal open fl	OW	Bb1/d
Ti	me of open flow	between initial and	final test	g	Hours
Static	rock Pressure	psig (surface	pressure)	after	Hours
			The second second	The same of the sa	
NOTE - ON DAG	V OF MUTS HORN	DUM MUD DOVE COMMUNICATION	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	20 0 2 1 C	
INTERVALS E	DACTURENC OF CO	PUT THE FOLLOWING	E 1). DETA	ILS OF PE	RFORATED
LOG WHICH I	S A SYSTEMATIC	IMULATING, PHYSICA DETAILED GEOLOGICA	L PECORD O	ETC. 2).	THE WELL
INCLUDING CO.	AD ENCOUNTERED B	V THE WELLBORE	IL KECOKD O	F ALL FOR	MATIONS,
Carrier and	COCIVOO	WADADOND.			
	FEB 18 2014 For	: COLUMBIA NATURAL	RESOURCES,	INC.	
		///	2011		
		By: Mil	lace		
	Office of Oil and Gas	Date: 1/2	1/49		
WV Dept	. of Environmental Protection			U3	/21/2014
				JJ	, <u>~</u>

WELL# 8	23442
---------	-------

PERFORATIONS:			
Stage I, Perforations:		_to <u>3500</u>	_
Stage 2, Perforations:	holes from	_to	_
Stage 3, Perforations:	holes from	_to	_
Stage 4, Perforations:	holes from	_to	-
FRACTURING:			
1 ⁸⁷ S	STAGE: <u>Devopian Sha</u>	le	
Breakdown @ <u>1488</u> ATP <u>1720</u> PSI, Tota	15 - <u>3500</u> , Acid PSI, Avg. Rate <u>54,0</u> I H ₂ 0 - Bbl., Total: Scf. I.S.I.P. <u>1000 p</u> s.i	<u>00</u>	(#
2ND	STAGE:		
Perforations from Breakdown @ ATP PSI, Total Total N ₂	, Acid PSI, Avg. Rate H₂0 Bbl., Total s Scf. I.S.I.P	gal BPM, sand 15 min	HCL, #
3RD 9	STAGE:		
Perforations from Breakdown @ ATP PSI, Total	, Acid _ PSI, Avg. Rate H ₂ 0 BbI., Total s Scf. I.S.I.P	gal BPM, and	HCL, #
4TH S	STAGE:		
Perforations from Breakdown @ ATP PSI, Total Total N ₂	, Acid PSI, Avg. Rate H ₂ 0 BbI., Total s Scf. I.S.I.P.	gal l BPM, and 15 min.	HCL, #Beceived

FEB 1 8 2014

Well Completion Data

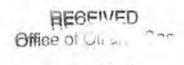
CNR Well #: 423442-> 47-99-01949 Permit#: County: Wayne District: Stonewall Prospect: **Harts Creek** Field: Harts Creek Central Jop. Base Top Base Sall Sand 845 3450 1210 Clentangey Shale Maxon Sand 1340 1590 Rhinestreet Shale 1590 1600 Fifth Sand yelalindili addit sibiri 1720 Elizabeth Sand 160 e en la companya de 1720 1825 Bradford Sand 1825 1835 <u>Pair (rimus all lleves fid</u> 1835 2380 alemannanishi 2380 2455 Omonagga Limestore a dayalan in Shala 2455 2505 Oriskany Sand it – Uinerlækoner 2505 3205 e Harburg Serie ei Janet Hillor Shale 3205 3450 : McKentië Dolomie u je su Tuškajo ja Sajii Formation @ TD Lower Huron Shale Depth Mofe Depth Depth Show/Oll/1 1835 Show Gas 1 3565 Show Water Show Gas 2 - Show Offit Show Gas 3 Show Gas 4 Show Gas 5 CHE POR SWE Ren Interval Pay 1 Berea/Cleveland See log... Pay 2 Lower Huron Sh. See log... Pay 3 Pay.4 Pav 5 Pay 6 Logger TD 3552 Logging Suite | GR, LDT, CNL, DI, T, A TD to intermediate casing point, GR to surface. Memory PL as needed. Logging Date: 10/8/98 Received

FEB 1 8 2014

823442 P&A PROCEDURE

- 1) Prepare road and location, MIRU Service Rig
- 2) Set cast iron bridge plug at 3000'
- 3) TIH with W.S. to 3000', load hole with gel
- 4) Spot 100' cement plug 3000'-2900', pull W.S. to 2400'
- 5) Spot 100' cement plug 2400'-2300', pull W.S. to 1835'
- 6) Spot 100' cement plug 1835'-1735', pull W.S. to 1625'
- 7) Spot 100' cement plug 1675'-1525', pull W.S.
- 8) Cut 4 1/2" casing at free-point (approximately 1315') and pull
- 9) Run W.S. to 1350', load hole with gel
- 10) Spot 100 cement plug 1350'-1250', pull W.S. to 875'
- 11) Spot 100' cement plug 875'-775', pull W.S. to 650'
- 12) Spot 70' cement plug 650'-560', pull W.S. to 350' 100 Minimom
- 13) Spot 125' cement plug 350'-225', pull W.S. to 125'
- 14) Spot 125' cement plug 125' surface
- 15) Pull W.S. and top off with cement
- 16) Set monument and reclaim as prescribed by law





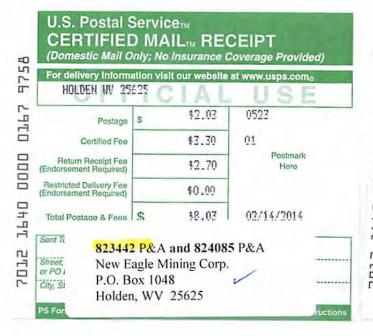
FEB W4 2014

WW4-A Revised 2/01 1) Date: 2/13/2014 2) Operator's Well No. 823442 P&A 3) API Well No. 47-099-01949

STATE OF WEST VIRGINIA - BUREAU OF ENVIRONMENT DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS NOTICE OF APPLICATION TO PLUG AND ABANDON A WELL

	0.1.0	40. July 1. Ju	APPLICATION TO PLU	5) Coal Operate		
4)		ner(s) to be served:		(a) Name	Argus Energy	WW IIC
	(a) Name	Heartwood Forestland	-1:	Address		Pole Creek Road
	Address	Attention: Craig Kaderav 19045 Stone Mountain Ro		Address	Dunlow, WV	
		Abingdon, VA 24210	au		Daimon, Tr	20011
		Abinguon, VA 24210		Coal Owner	s) with Declara	tion
	/ls/ Name			(b) Name	Pocahontas L	
	(b) Name			Address	800 Princeton	
	Address	No. of the last		Addiess.	Bluefield, WV	
		-	_		Bidefield, WV	24701
				Name		
	(c) Name			Address	-	
	Address		_	Address	-	
					•	
					e with Declara	
3)	Inspector	Jeremy James		(c) Name	New Eagle Mi	ning Corp.
	Address	P.O. Box 147		Address	P.O. Box 1048	3
		Ona, WV 25545			Holden, WV 2	25625
	Telephone	304-951-2596			н.	
	The reason yo instructions on Take notice the Notice and Appoil and Gas, V attached Applic	urveyor's map) showing the well u received these documents is to the reverses side. However, you at under Chapter 22-6 of the We plication and accompanying doc Vest Virginia Department of Envication and depicted on the attac	hat you have rights regarding are not required to take a set Virginia Code, the under uments for a permit to plug ronmental Protection, with thed Form WW-6. Copies	any action at all. rsigned well operator and abandon a well respect to the well at of the Notice, the App	proposes to file or with the Chief of th the location descr dication, and the p	has filed the ne Office of ribed on the lat have been
		stered or certified mail or deliver) on or before the day of mailing) named above (or by	publication in cer	tain
-) on or belore the day of mailing	Well Operator:	Chesapeake Appel	achia. 2.1	,
	www	Official Seal Notary Public		Line	7 77	2
	STREET	State of West Virginia 2	By:	Manager - Operation		outh
	हिंभी में	Phyllis A. Copley &	lts:		no, Appaiacilla St	outil
	1 CE	144 Willard Circle Hurricane, WV 26528	Address:	P.O. Box 18496	. 70454.0400	
	The same	My Commission Expires September 16, 2018	and the	Oklahoma City, OK	/3154-0496	
	Emm	ummmm	Telephone:	405-935-4073		
Sub	scribed and swo	orn before me this 13 th	day of February	the year of	2014	Received
3-2	2 marina men		gla a. Ciplu	r	Notary Public	PPD 10 4444
	Commission Exp m WW-9	bires	September 16, 2018			FEB 1 8 2018

Well 823442 API 47-099-01949 P



9766	DUNLON MY 2	D M. Only; N	AIL _{IM} RE	CEIPT Coverage Provided) at www.usps.coms
~	1	i I	LAL	USE
0167	Postage	\$	12.03	0523
			\$3.30	01
0000	Return Receipt Fee (Endorsement Required)		\$2.70	Postmark Here
	Restricted Delivery Fee (Endorsement Required)		\$0.00	nere
7640	Total Postage & Fees	\$	\$8.03	02/14/2014
7012 1	or POE Argus	Energy welve	and 824085 -WV, LLC Pole Creek F 25511	

U.S. Postal Service CERTIFIED MAIL RECEIPT (Domestic Mail Only; No Insurance Coverage Provided) For delivery information visit our website at www.usps.co 47 BLUEFIELD WW 24701 910 \$2.03 0523 Postage Certified Fee \$3.30 01 Return Receipt Fee (Endorsement Required) Postmark \$2.70 Here 00 Restricted Delivery Fee (Endorsement Required) \$0.00 1640 Total Postage & Fees S \$8.03 02/14/2014 Sent To 823442 P&A and 824085 P&A Street, An Pocahontas Land Corp. or PO Box 800 Princeton Avenue City, State Bluefield, WV 24701 PS Form

П

10

U.S. Postal Service. CERTIFIED MAIL™ RECEIPT (Domestic Mail Only; No Insurance Coverage Provided) 9796 For delivery information visit our websit ABINGDON VA 24210 0767 \$2.03 0523 Postage \$ Certified Fee \$3.30 01 0000 Postmark Return Receipt Fee (Endorsement Required) \$2.70 Here Restricted Delivery Fee (Endorsement Required) \$0.00 1640 Total Postage & Fees \$ \$8.03 02/14/2014 Sent To 823442 P&A and 824085 P&A 7012 Heartwood Forestland Street or POL C/O Craig Kaderavak City, St. 19045 Stone Mountain Road Abingdon, VA 24210 PS For

Received

FEB 1 8 2014

Office of Oil and Gas WV Dept. of Environmental Protection

03/21/2014

Rev. 02/01

API Number 47-Operator's Well No. 823

47-099-01949 823442 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 Na	meC	hesapeake A	Appalachia, L.I	C.	OP Code4	94477557	9
Watershed		Queens For	k of Kiahs Creel	(Quadrangle	Kiahsvi	lle, WV 7.5'
Elevation _	983'		County _	Wayne	D	istrict	Stonewall
Description of	of anticipated	Pit Waste:	Plugging Ret	urns/Cement			
Will a synthe	tic liner be us	ed in the pit?	Yes				
Proposed Dis	sposal Method	Land App Undergro Reuse (a	plication ound Injection (at API Number_ Disposal (Suppl		or disposal locat)) ion)	
Proposed Wo	ork For Which	Pit Will Be to Drilling Workove Swabbing	r				
	X	Plugging Other (E))	
issued on I understand permit and. I certify this applica for obtainin significant Company Off	December 31, 19 If that the provision for other applicate ounder penalty outling form and all go the information penalties for sub ficial Signature	99, by the Officions of the permipole law or regular flaw that I have attachments the permipole that I believe that I mitting false info	e of Oil and Gas of t are enforceable by tion can lead to en expersonally examine ereto and that, base the information is to formation, including	the West Virginia y law. Violations of forcement action. ed and am familia ed on my inquiry oue, accurate, and the possibility of fi	ERAL WATER POLL Department of Envir of any term or condition of those individuals in Complete. I am awane or imprisonment.	onmental Pro on of the gen submitted o	otection. I eral n esponsible
	icial (Typed N	lame)	David Gocke				
Company Off	icial Title		Manager - Op	erations, App	alachia South		
Subscribed a	nd sworn befo	ore me this	13th day of	February . A. Opp	1		otary PERCEIVED
1y Commissi	on Expires	Septen	nber 16, 2018	_			Office of OI and office o

Attachment #1

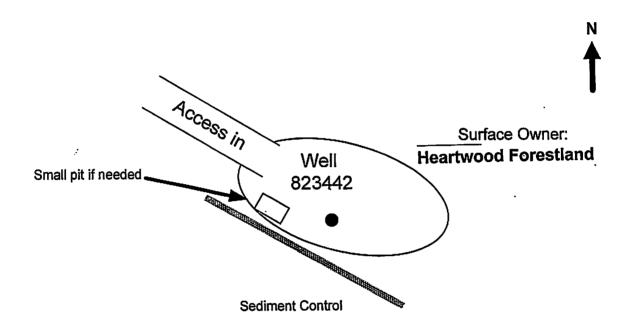
API #: 47-099-01949 Operator's Well No. 823442 P&A

ı	EGEND	
Property Boundary	Diversion Control of the Control of	LIIII
Road = = = = = = = = = = =	Spring -	
Existing Fence — X — X — X —	Wet Spat	
Planned Fence///	Drain Pipe with size in inches (2	
Stream Stream	Waterway \longleftrightarrow \longleftrightarrow \longleftrightarrow	<u> </u>
Open Ditch	Cross Drain	
Rock 65665	Artificial Filter Strip	XXXX
North N	Pit: cut walls	
Buildings	Pit: compacted fill walls	
Water wells	Area for Land Application of Pit Waste	
Drill site		
Proposed Revegetation Treatment: Acres Disturbed	d 1.0 Prevegetation pH 6.1	
Lime 3	Tons/acre or to correct to pH 6.5	
Fertilizer (10-20-20 or equivalent) 1/3 TON	lbs/acre (500 lbs minimum)	
Mulch Hay 2	_Tons/acre	
s	eed Mixtures	
Area I	Area II	
Seed Type Ibs/acre	Seed Type	lbs/acre
KY-31 40 ALSIKE CLOVER 5	ORCHARD GRASS ALSIKE CLOVER	15 5
ANNUAL RYE 15	ALOINE GEOVER	•
Attach:		
Drawing(s) of road, location, pit and proposed area for	r land application.	
Photocopied section of involved 7.5' topographic shee	et.	
Plan Approved by:		
Title: inspector 000		
		RECEIVED
Date: 2-21-14	Offi	RECEIVED Ce of Oil and Gas

WV Department of Environmental Protestion

CHESAPEAKE APPALACHIA, L.L.C.

Diagram of Well 823442
API 47-099-1949
Field Office - Branchland
County -Wayne



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

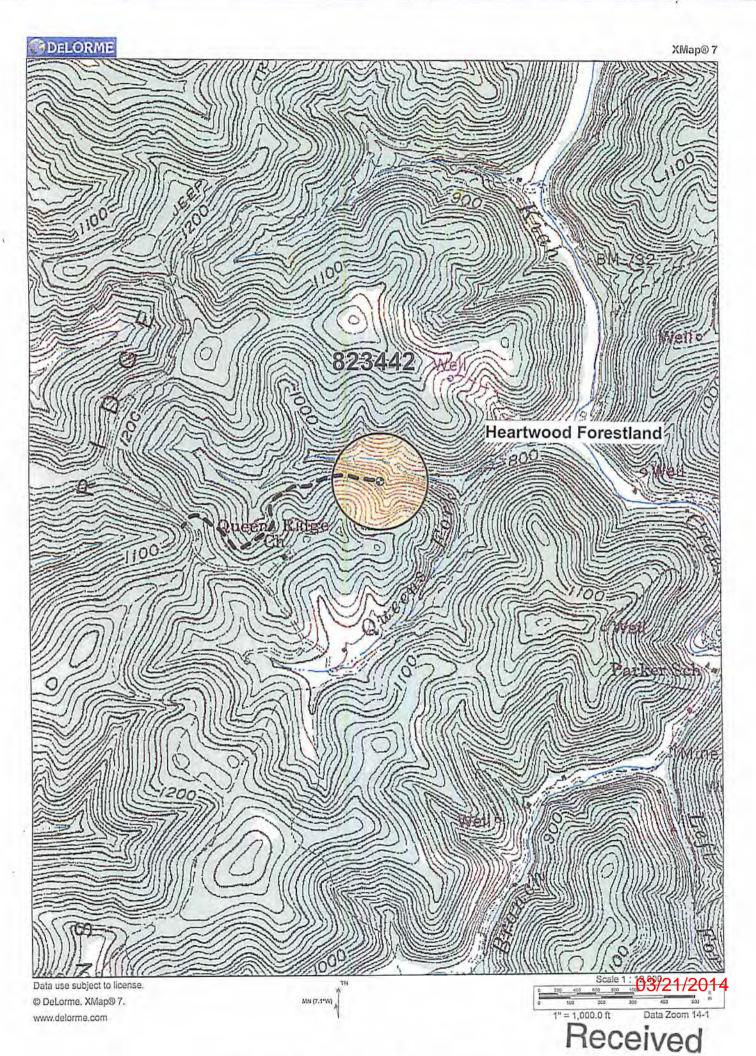
Prepared by: Kris Aldridge

Date: 1-23-2014

Received²⁰¹⁴

FEB 1 8 2014

Topographical Map of Access and Well Location 823442 API 47-099-1949 Field Office - Branchland County - Wayne



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

FEB 1 8 2014

Office of Oll and Gas WV Dept. of Environmental Protection

