



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

Monday, January 23, 2017
WELL WORK PERMIT
Vertical / Plugging

CHESAPEAKE APPALACHIA, L.L.C. (A)
POST OFFICE BOX 6070

CHARLESTON, WV 253620070

Re: Permit approval for 826086
47-039-05888-00-00

This well work permit 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 any additional specific 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.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days of completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless 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: 826086
Farm Name: STEWART, SAMMY & RHONDA
U.S. WELL NUMBER: 47-039-05888-00-00
Vertical / Plugging
Date Issued: 1/23/2017

Promoting a healthy environment.

01/27/2017

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.

WW-4B
Rev. 2/01

1) Date: 11/30/2016
2) Operator's Well No. 826086
3) API Well No. 47-039-05888

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
OFFICE OF OIL AND GAS

APPLICATION FOR A PERMIT TO PLUG AND ABANDON

- 4) Well Type: Oil Gas X Liquid injection Waste disposal
(Is Gas, Production X or Underground storage) Deep Shallow X
- 5) Location: Elevation 782' Watershed Rucker Fork of Little Sandy Creek
District Eik County Kanawha Quadrangle Kettle, WV 7.5'
- 6) Well Operator Chesapeake Appalachia, L.L.C. 7) Designated Agent Jessica Greathouse
Address P.O. Box 18496 Address P.O. Box 6070
Oklahoma City, OK 73154-0496 Charleston, WV 25362
- 8) Oil and Gas Inspector to be notified 9) Plugging Contractor
Name Terry Urban Name Chesapeake Appalachia, L.L.C.
Address P.O. Box 1207 Address P.O. Box 18496
Clendenin, WV 25045 Oklahoma City, OK 73154-0496

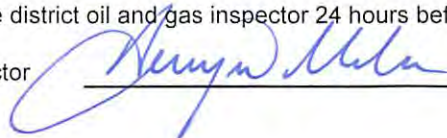
10) Work Order: The work order for the manner of plugging this well is as follows:

See Attached Sheet

Operator will cover with Cement all perforated
& Oil Gas bearing formations. All casing cuts & Salt Sand
sand & Elevations

Notification must be given to the district oil and gas inspector 24 hours before permitted work can commence.

Work Order approved by Inspector




Date

12-5-16

01/27/2017

826086 PLUGGING PROCEDURE

- 1) Prepare road and location, MIRU Service Rig
- 2) Check pressures and blow well down to tank, recover rabbit and spring
- 3) Load hole with enough water to kill the highest pressure plus 25% safety factor
- 4) Check TD at approximately 5100' with tools or tubing, spot gel
- 5) Spot ^{550'}200' cement plug 5100'-^{4550'}4900', pull W.S., WOC
- 6) Check top of plug with tools or tubing. If TOC is below ^{4550'}4950', then add cement to top of plug
- 7) Pull or run W.S. to ^{4300'}4600', spot gel
- 8) Spot ^{550'}150' cement plug 4600'-^{4350' - 3800'}4450', pull W.S. to ^{3500'}3825'
- 9) Spot ^{400'}150' cement plug ^{3500' - 3100'}3825'-^{3100'}3675', pull W.S., WOC
- 10) Check top of plug with tools or tubing. If TOC is below ^{3100'}3720' then add cement to top of plug
- 11) Cut 4.5' casing at free-point at approximately 2150', and pull
- 12) Run W.S. to casing cut at approximately 2150', spot gel
- 13) Spot 150' cement plug 2150'-2000', pull W.S. to 1725', spot gel
- 14) Spot 150' cement plug 1725'-1575', pull W.S.
- 15) Check top of plug with tools or tubing. If TOC is below 1610', then add cement to top of plug.
- 16) Pull or run W.S. to 1250', spot gel
- 17) Spot 150' cement plug 1250'-1100', pull W.S. to 550'
- 18) Spot 150 cement plug 550'-400', pull W.S. to 200'
- 19) Spot 200' cement plug 200'-surface
- 20) Pull W.S. and top off with cement
- 21) Erect monument and reclaim as prescribed by law

SEE WW-4B

 12.5.16

State of West Virginia
 Division of Environmental Protection
 Section of Oil and Gas
 Well Operator's Report of Well Work

Farm name: Stewart, Sammy & Rhonda
 Location Elevation: 773'
 District: Big-Sandy *EIK*

Well No.: 826086
 Quadrangle: Kettle
 County: Kanawha

CHESAPEAKE APPALACHIA, L.L.C.	Casing & Tubing	Used in drilling	Left in Well	Cement fill up Cu.Ft.
Address: P.O. Box 6070	13 3/8	21	21	Sanded In
Charleston, WV 25362	9 5/8	280	280	135
Agent: Michael A. John	7	1641	1641	379.6
Inspector: Carlos Hively	4 1/2	5115	5115	296.4
Date Permit Issued: 08/16/06	2 3/8		5042	
Date Well work commenced: 09/14/06				
Date Well Work completed: 02/27/07				
Verbal Plugging:				
Date Permission granted on:				
<input checked="" type="checkbox"/> Rotary <input type="checkbox"/> Cable <input type="checkbox"/> Rig				
Total Depth (feet): 5120'				
Fresh Water Depth (ft): 160'				
Salt Water Depth (ft.): 1260'				
Is coal being mined in area <input checked="" type="checkbox"/> N <input type="checkbox"/> Y				
Coal Depths (ft): None Reported				

OPEN FLOW DATA (SEE ATTACHED)

Producing formation: Pay zone depth (ft) from _____ to; from _____ to _____
 Gas: Initial open flow MCF/d Oil: Initial open flow Bbl/d
 Final open flow MCF/d Final open flow Bbl/d
 Time of open flow between initial and final tests Hours
 Static rock Pressure psig (surface pressure) after Hours

2nd producing formation: Pay zone depth (ft) from _____ to; from _____ to _____
 Gas: Initial open flow MCF/d Oil: Initial open flow Bbl/d
 Final open flow MCF/d Final open flow Bbl/d
 Time of open flow between initial and final tests Hours
 Static rock Pressure psig (surface pressure) after Hours

3rd producing formation: Pay zone depth (ft) from _____ to; from _____ to _____
 Gas: Initial open flow MCF/d Oil: Initial open flow Bbl/d
 Final open flow MCF/d Final open flow Bbl/d
 Time of open flow between initial and final tests Hours
 Static rock Pressure psig (surface pressure) after Hours

NOTE: ON BACK OF THIS FORM PUT THE FOLLOWING: 1). DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE.

WELL OPERATOR: CHESAPEAKE APPALACHIA, L.L.C.

By: *[Signature]* Date: 3-20-07

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 Office of Oil and Gas

DEC 02 2016
 WV Department of
 Environmental Protection

Operator Well No: 826086

1st Stage: N2 Frac of Marcellus/Genesee

Date Fraced: 01/29/2007

17 Perforations from 5,088 - 5,096Breakdown @ 4,720 PSIATP 4,592 PSITotal N2 1,503,700 SCFAvg Rate 44,960 SCFM BPMPost ISIP 3,209 PSI

2nd Stage: Variable Q foam Frac of Rhinestreet

Date Fraced: 01/29/07

14 Perforations from 4,609 - 4,890Breakdown @ 3,799 PSIATP 2,980 PSITotal N2 723,400 SCFAcid 250 gal. 15 % HCLAvg Rate 50.2 SCFM BPMTotal H2O 112 Bbl., Total Sand 24,500 lbs.Post ISIP 1,676 PSI

3rd Stage: Variable Q Foam Frac of L. Huron

Date Fraced: 01/29/07

12 Perforations from 3,820 - 4,326Breakdown @ 2,738 PSIATP 2,760 PSITotal N2 743,300 SCFAcid 300 gal. 15 % HCLAvg Rate 40.3 SCFM BPMTotal H2O 127 Bbl., Total Sand 44,614 lbs.Post ISIP 1,501 PSI

4th Stage: Variable Q Foam Frac of U. Shale

Date Fraced: 01/29/07

11 Perforations from 3,149 - 3,503Breakdown @ 3,617 PSIATP 3,463 PSITotal N2 751,500 SCFAcid 350 gal. 15 % HCLAvg Rate 40.3 SCFM BPMTotal H2O 114 Bbl., Total Sand 33,993 lbs.Post ISIP 2,280 PSIMarcellus, Rhinestreet, Lower Huron FOF 265 Mcf/dMarcellus, Rhinestreet, Lower Huron FRP 630 PSI

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Chesapeake Energy Corp.-Eastern Division
Chesapeake Energy 826086
Big Sandy District, Kanawha County, WV
47-039-05888-0000

Formations	Tops
Base SLSD	1610.38
BGLM	1655.39
BGIN	1722.36
Base BGIN	1802.04
WEIR	2040.27
Base WEIR	2137.16
SNBR	2171.24
BEREH	2183.85
BERE	2183.85
GRDN	2476.33
Base GRDN	2526.44
HURNL	3833.85
JAVA	4326.82
ALXD	4464.38
Base ALXD	4496.44
RNSR	4647.06
CASH	4873.40
MDLX	5028.57
GENS	5049.68
MRCL	5070.78
ONDG	5109.68
TD	5120.00

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Office of Oil and Gas

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WV Department of
Environmental Protection

01/27/2017

1) Date: 11/30/2016
2) Operator's Well No. 826086
3) API Well No. 47-039-05888

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

4) Surface Owner(s) to be served:
(a) Name Samantha K. and
Address David Wayne Stewart
P.O. Box 436
Elkview, WV 25071

5) (a) Coal Operator
Name None

(b) Name Access Road
Address Charles W. and Linda S. Weible
10114 Frame Road
Elkview, WV 25071

(b) Coal Owner(s) with Declaration
Name Carl A. Olian II and Linda Olian
Address 2112 Stratford Road
South Charleston, WV 25303

(c) Name _____
Address _____

Name _____
Address _____

6) Inspector Terry Urban
Address P.O. Box 1207
Clendenin, WV 25045

Telephone 304-549-5915

(c) Coal Lessee with Declaration
Name None
Address _____

TO THE PERSONS NAMED ABOVE: You should have received this Form and the following documents:

- (1) The application to Plug and Abandon a Well on Form WW-4B, which sets out the parties involved in the work and describes the well its and the plugging work order; and
- (2) The plat (surveyor's map) showing the well location on Form WW-6.

The reason you received these documents is that you have rights regarding the application which are summarized in the instructions on the reverses side. However, you are not required to take any action at all.

Take notice that under Chapter 22-6 of the West Virginia Code, the undersigned well operator proposes to file or has filed the Notice and Application and accompanying documents for a permit to plug and abandon a well with the Chief of the Office of Oil and Gas, West Virginia Department of Environmental Protection, with respect to the well at the location described on the attached Application and depicted on the attached Form WW-6. Copies of the Notice, the Application, and the plat have been mailed by registered or certified mail or delivered by hand to the person(s) named above (or by publication in certain circumstances) on or before the day of mailing or delivery to the Chief.



Well Operator: Chesapeake Appalachia, L.L.C.
By: [Signature]
Its: Manager - Operations, Appalachia South
Address: P.O. Box 18496
Oklahoma City, OK 73154-0496
Telephone: 405-935-4073

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WV Department of
Environmental Protection

Subscribed and sworn before me this 1st day of December the year of 2016
Phyllis A. Copley Notary Public
My Commission Expires September 16, 2018

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
FLUIDS/CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name Chesapeake Appalachia, L.L.C. OP Code 494477557

Watershed (HUC 10) Rucker Fork of Little Sandy Creek Quadrangle Kettle, WV 7.5'

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work No

Description of anticipated Pit Waste: Plugging Returns/Cement

Will a synthetic liner be used in the pit? Yes If so, what ml.? 20 ml.

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number _____)
- Reuse (at API Number _____)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain: Any fluid recovered will be hauled to one of Chesapeake's tank batteries)

Will closed loop system be used? No If so, describe: _____

Drilling medium anticipated for this well (Vertical and horizontal)? Air, freshwater, oil based, etc. _____

-If oil based, what type? Synthetic, petroleum, etc. _____

Additives to be used in drilling medium? _____

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. _____

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) _____

-Landfill or offsite name/permit number? _____

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2015, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature *David Gocke*

Company Official (Typed Name) David Gocke

Company Official Title Manager - Operations, Appalachia South

Subscribed and sworn before me this 1st day of December, 2016.

Phyllis A. Copley

Notary Public
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Office of Oil and Gas

My Commission Expires September 16, 2018



DEC 02 2016
Department of Environmental Protection
01/27/2017

Timothy - 7 lbs/acre
Kentucky Bluegrass - 7 lbs/acre
Winter Wheat (June 15-Nov 15) or Spring Wheat (Feb 15-June 15) - 12 lbs./acre
Annual Rye (June 15-Nov 15) or Oats (Feb 15-June 15) - 14 lbs/acre
Alfalfa (pre inoculated) - 10 lbs/acre
Durana Clover (pre inoculated) - 3 lbs/acre
Mammoth Red Clover (pre inoculated) - 5 lbs/acre
Chicory - 2 lbs/acre

Total Seeding will be 60 lbs/acre

Mulch - Weed free straw at 1500 lbs/acre

Fertilizer - 1-20-20 at 500 lbs/acre

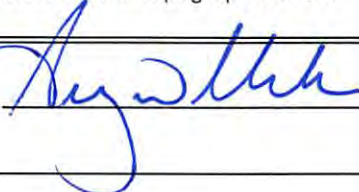
Lime - Agricultural lime or lime

Attach:

Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, include dimensions (L x W x D) of the pit, and dimensions (L x W), and area in acreage, of the land application area.

Photocopied section of involved 7.5' topographic sheet

Plan Approved by:



Comments:

AT upper frame rd

Title:

Field Sup Delegates

Date:

12-5-14

Field Reviewed?

()

Yes

()

No

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CHESAPEAKE APPALACHIA, L.L.C.

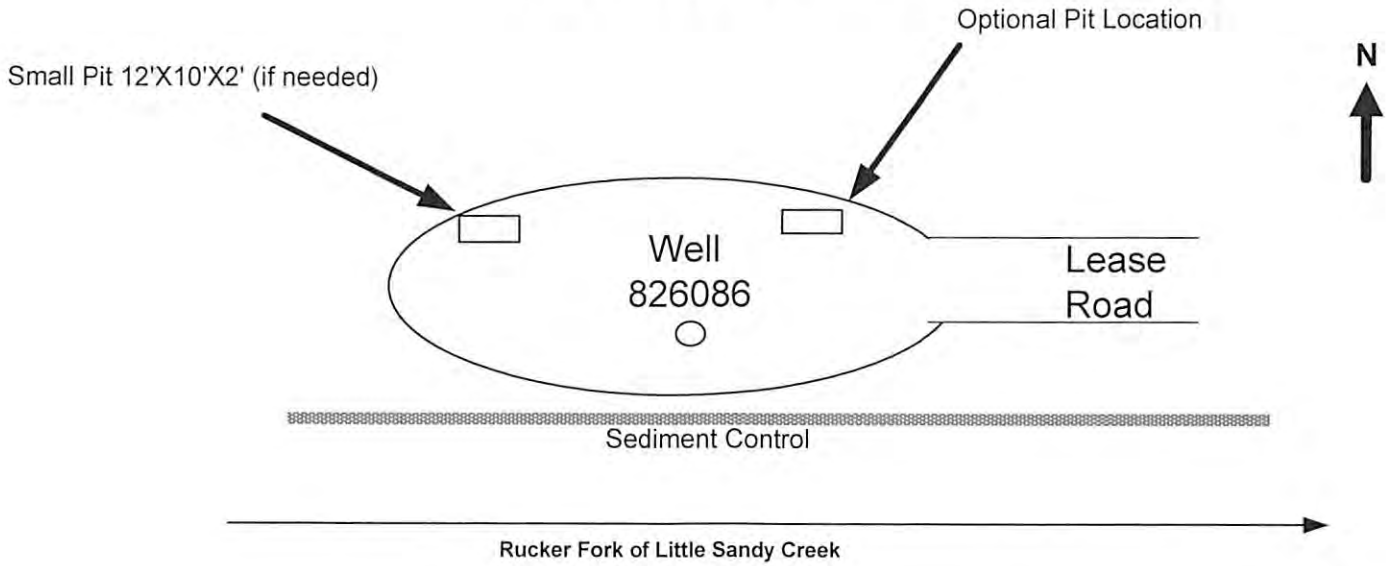
Diagram of Well Site Plan 826086

API 47-039-05888 P

Field Office – Crawford

County - Kanawha

Surface Owner:
Samantha & Daniel Stewart



Note: No land application.
Pit will have minimum 20
mil liner

Site Plan

Prepared by: Kris Aldridge
Date: 11-30-2016

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DEC 02 2016

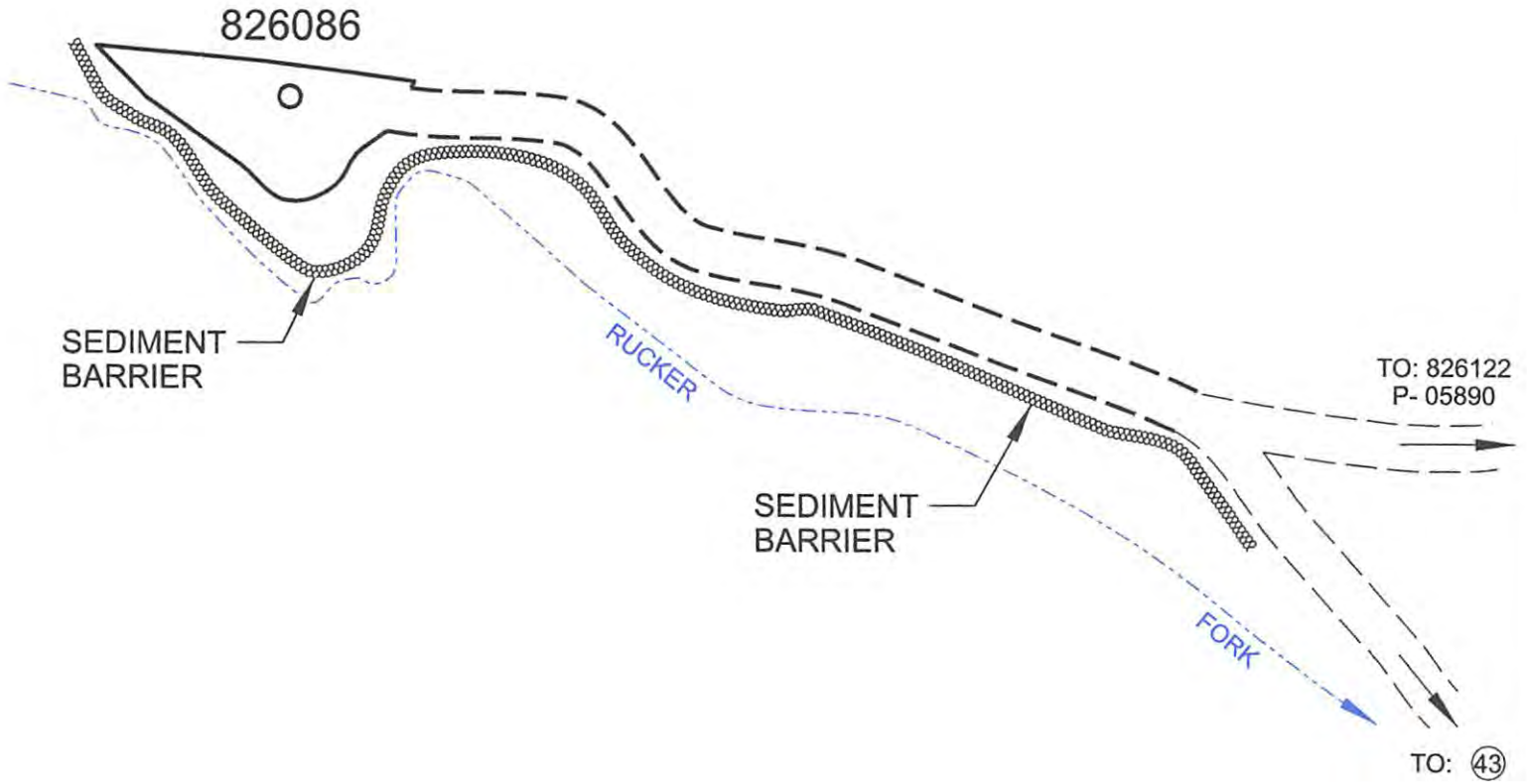
WV Department of
Environment, Natural Resources & Culture
No Scale 01/27/2017

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CHESAPEAKE APPALACHIA, L.L.C.

RECLAMATION DIAGRAM
WELL LOCATION 826086

API 47-039-05888



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WV Department of
Environmental Protection

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 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 in areas that will allow. These structures will be considered permanent and used as such.

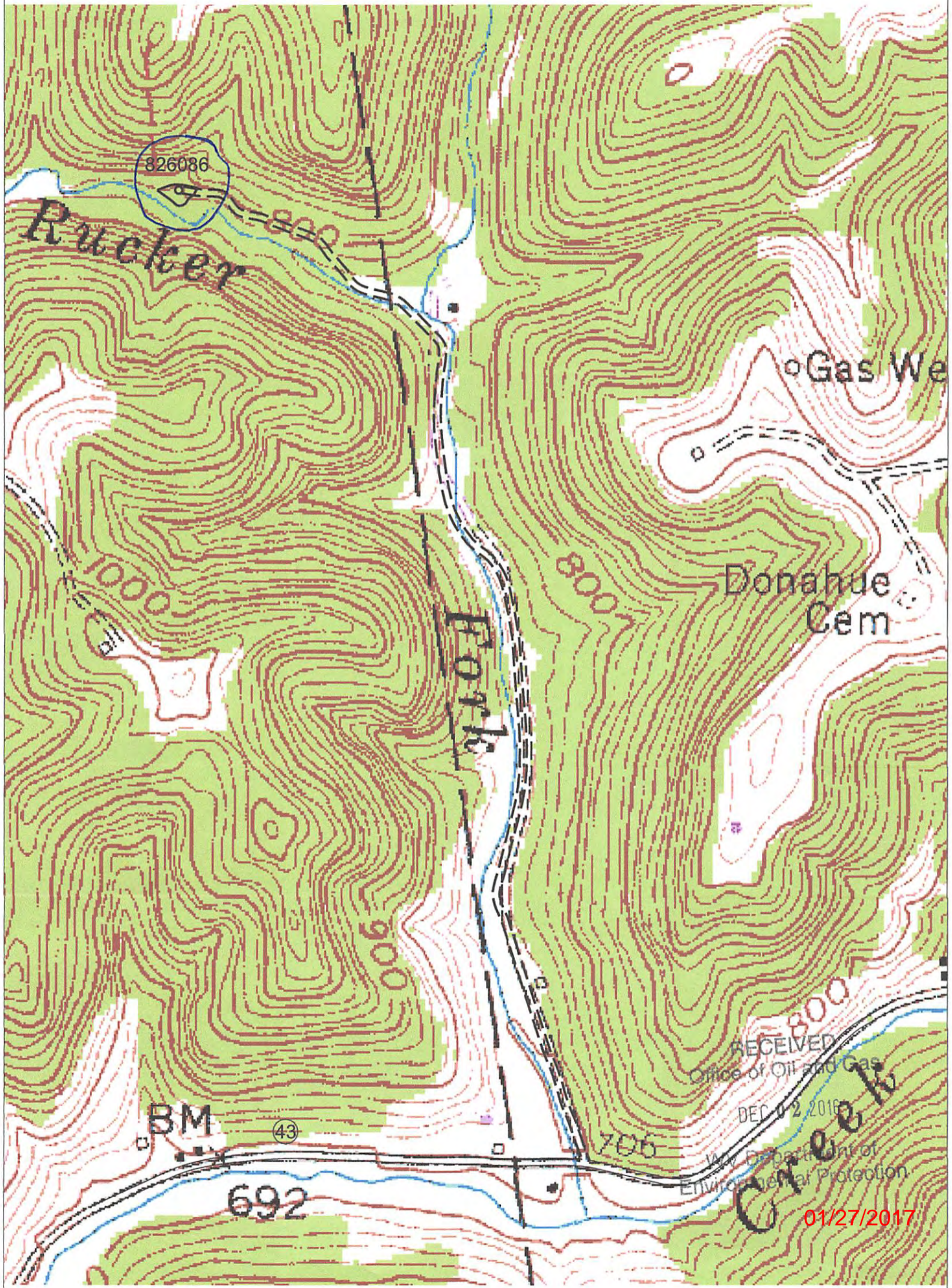
01/27/2017

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CHESAPEAKE APPALACHIA, L.L.C.

TOPOGRAPHICAL MAP OF ACCESS AND WELL LOCATION 826086

API 47-039-05888



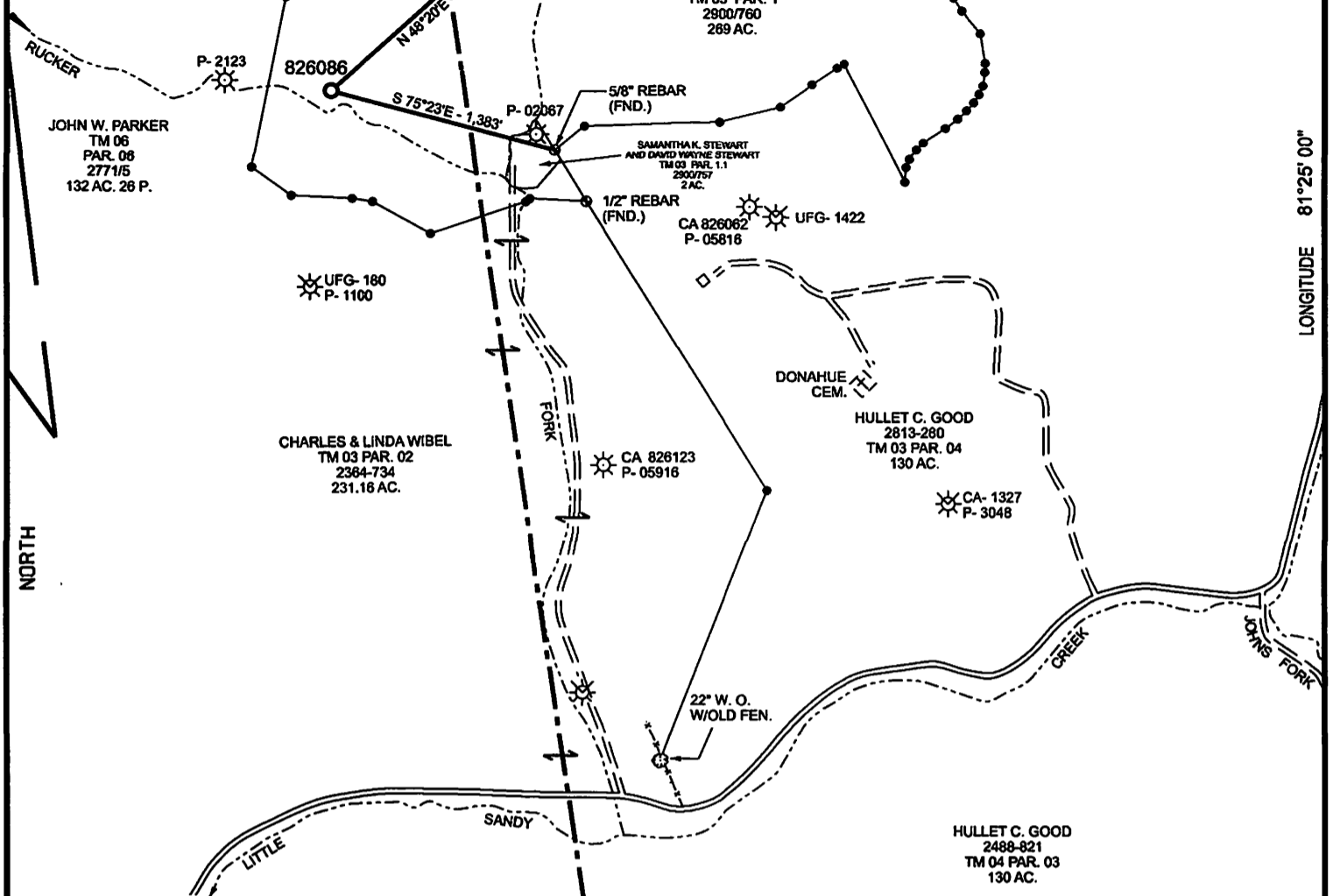
NOTE: ALL WELLS IDENTIFIED WITHIN 2400' ARE SHOWN

8,955'

LATITUDE 38°35' 00"

KANAWHA CO. ELK DIST.

KANAWHA CO. BIG SANDY DIST.



LONGITUDE 81°25' 00"

14,841'

NOTE: NO BUILDING STRUCTURES IDENTIFIED WITHIN 200'

WELL SITE	
STATE PLANE WV SOUTH ZONE NAD 1927 N - 562,028.746 : E - 1,871,887.157	
LATITUDE: (N) 38.5426249° LONGITUDE: (W) 81.4479190°	
UTM NAD83 17 - 84W TO 78W, METERS N - 4,266,128.736 : E - 460,978.980	

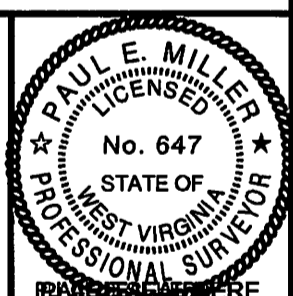
(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS

FILE NO.	CA 826086 P&A.DGN
DRAWING NO.	CA 826086 P&A
SCALE	1" = 1000'
MINIMUM DEGREE OF ACCURACY	1 : 200
PROVEN SOURCE OF ELEVATION	MAPPING GRADE GPS

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 REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION

(SIGNED) *Paul E. Miller*

R.P.E. _____ L.L.S. 647



STATE OF WEST VIRGINIA DIVISION OF ENVIRONMENTAL PROTECTION OIL AND GAS DIVISION		DATE <u>NOVEMBER 29</u> , 20 <u>16</u>	
		OPERATOR'S WELL NO. <u>826086</u>	
		API WELL NO. _____	
WELL TYPE: OIL <input type="checkbox"/> GAS <input type="checkbox"/> LIQUID INJECTION <input type="checkbox"/> WASTE DISPOSAL <input type="checkbox"/>		STATE <u>47</u> COUNTY <u>039</u> PERMIT <u>05888 P</u>	
(IF "GAS,") PRODUCTION <input type="checkbox"/> STORAGE <input checked="" type="checkbox"/> DEEP <input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/>			
LOCATION: ELEVATION <u>782'</u> WATER SHED <u>RUCKER FORK OF LITTLE SANDY CREEK</u>			
DISTRICT <u>ELK</u> COUNTY <u>KANAWHA</u>			
QUADRANGLE <u>KETTLE, WV 7.5'</u>			
SURFACE OWNER <u>SAMANTHA K. STEWART AND DANIEL WAYNE STEWART</u> ACREAGE <u>120</u>			
OIL & GAS ROYALTY OWNER <u>CARL A. OLIAN II</u> LEASE ACREAGE <u>110</u>			
LEASE NO. <u>1220270</u>			
PROPOSED WORK: DRILL <input type="checkbox"/> CONVERT <input type="checkbox"/> DRILL DEEPER <input type="checkbox"/> REDRILL <input type="checkbox"/> FRACTURE OR STIMULATE <input type="checkbox"/> PLUG OFF OLD FORMATION <input type="checkbox"/> PERFORATE NEW FORMATION <input type="checkbox"/> OTHER PHYSICAL CHANGE IN WELL (SPECIFY) _____			
PLUG AND ABANDON <input checked="" type="checkbox"/> CLEAN OUT AND REPLUG <input type="checkbox"/>			
TARGET FORMATION _____ ESTIMATED DEPTH _____			
WELL OPERATOR <u>CHESAPEAKE APPALACHIA, L.L.C.</u> DESIGNATED AGENT <u>JESSICA GREATHOUSE</u>			
ADDRESS <u>P.O. BOX 18496, OKLAHOMA CITY, OK 73154-0496</u> ADDRESS <u>CHESAPEAKE APPALACHIA, L.L.C. PO BOX 6070, CHARLESTON, WV 25382</u>			

FORM WV-9

COUNTY NAME PERMIT

01/27/2017