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

June 27, 2016

WELL WORK PLUGGING PERMIT

Plugging

This permit, API Well Number: 47-4302078, 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.

James Martin
Chief

Operator's Well No: 5969
Farm Name: COLUMBIA NAT'L RES.TR#11
API Well Number: 47-4302078
Permit Type: Plugging
Date Issued: 06/27/2016

Promoting a healthy environment.

4302078P

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.
4. This well is under a consent order and must be plugged under the terms of that agreement.

4302078P

WW-4B
Rev. 2/01

1) Date: 6/2/2016
2) Operator's Well No. 805969
3) API Well No. 47-043-02078

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 830' Watershed Ninemile Creek
District Laurel Hill County Lincoln Quadrangle Branchland, WV 7.5

6) Well Operator Chesapeake Appalachia, L.L.C.
Address P.O. Box 18496
Oklahoma City, OK 73154-0496

7) Designated Agent Jessica Greathouse
Address P.O. Box 6070
Charleston, WV 25362

8) Oil and Gas Inspector to be notified
Name Jeffrey L. Smith
Address 5349 Karen Circle, Apt 2102
Cross Lanes, WV 25313

9) Plugging Contractor
Name Chesapeake Appalachia, L.L.C.
Address P.O. Box 18496
Oklahoma City, OK 73154-0496

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

See Attached Sheet

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

Work Order approved by Inspector _____ Date _____

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API Number: **47-043-02078**

Operator's Well Number: **805969**

PLUGGING PROCEDURE

NOTE: In 1961 the old tubing and packer was pulled. A hookwall packer was ran to 1493' on 3 ½" tubing. The 3 ½" was cemented above the packer with 60 sacks of cement. The calculated TOC is 1000'.

1) Prepare road and location, MIRU Service Rig
2) Run in hole to check TD at approximately 1500'
3) TIH with W.S. to 1500', spot gel
4) Spot 300' cement plug 1500'-1200', pull W.S., WOC
5) RIH with tools to check TOC. If top of plug is below 1250', then add to top of plug.
6) Cut 3 ½" at free-point (approximately 950') and pull
7) Rip holes in 6 5/8" casing at approximately 940' and 920'
8) Run W.S. to 950', spot gel
9) Spot 150' cement plug 950'-800', pull W.S.
10) Cut 6 5/8" at free-point (approximately 635') and pull.

    NOTE: If unable to pull at least 600' of 6 5/8" casing, then rip holes at approximately 625' and 600' so Salt Sand plug can be set, then pull 6 5/8' from where free.
11) TIH with W.S. to 635', spot gel
12) Spot 135' cement plug 635'-500', pull W.S. to 150'
13) Spot 150' cement plug 150'-surface
14) Pull W.S. and top off with cement
15) Erect monument and reclaim as prescribed by law

ok
gwu

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Well 805969, API 47-043-02078

FORM H-87 #5969 HUNTINGTON DEVELOPMENT & GAS CO.

4302078P

Serial Well No. 140 Lease No. Map Square

RECORD OF WELL No. on the
H. D. & G. Co Farm of Acres
In Laurel Hill District
Lincoln County
Field, State of W.Va.

Rig Commenced 192
Rig Completed 192
Drilling Commenced 7-5-16 192
Drilling Completed 8-416 192
Drilling to cost per foot
Contractor is: Kirtley & Co.
Address:

Driller's Names E. Stanley & A.G.Craig

CASTING AND TUBING

SIZE	USED IN DRILLING	LEFT IN WELL
16		
13		
10		
8¼		26
6⅝		1287
5 3-16		
4½		
4		
3		125
2		1405

SHUT IN
Date
in Tubing or Casing
Size of Packer
Kind of Packer
1st Perf. Set from
2nd Perf. Set from

TEST BEFORE SHOT
of Water in 10ths
of Merc. in 10ths
Volume

TEST AFTER SHOT
of Water in 10ths
of Merc. in 10ths
Volume 1,100,640 Cu. Ft.
Rock Pressure 492
Date Shot 7-31-16
Size of Torpedo 100 Qts
Oil Flowed bbls. 1st 24 hrs.
Oil Pumped bbls. 1st 24 hrs.

Well abandoned and
Plugged 19

DRILLER'S RECORD

Formation	Top	Bottom	Thickness
Surface, gravel	0	20	
Sand	20	50	
Slate	50	65	
Sand	65	100	
White slate	100	125	
Sand	125	200	
Slate	200	245	
Sand	245	325	
Slate & shells	325	635	
Salt sand	635	825	
Slate	825	840	
Sand	840	1045	
Slate	1045	1060	
Slate & shells	1060	1100	
Sand	1100	1145	
Red rock	1145	1160	
Lime	1160	1170	
Red rock	1170	1178	
Slate & lime	1178	1210	
Red rock	1210	1218	
Slate	1218	1230	
Lime	1230	1245	
Slate	1245	1255	
Little lime	1255	1280	
Pencil cave	1280	1282	
Big Lime	1282	1472	
Slate	1472	1486	
Red rock	1486	1493	
Slate	1493	1503	
Big Injun	1503	1530	
Slate	1530	1577	
TOTAL DEPTH		1577	

Remarks

Gas from Big Injun

043-2078

In 1961 tubing and packer was pulled. New 3½ tubing was ran and cemented above packer set @ 1493'. There were 60 sacks of cement used. The calculated TOC is 1000'.

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WW4-A
Revised 6-07

1) Date: 6/2/2016
2) Operator's Well No. 805969
3) API Well No. 47-043-02078

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 Jeff Luft
Address 18870 Sumpter Road
Belleville, MI 48111

(b) Name
Address

(c) Name
Address

5) (a) Coal Operator
Name None

(b) Coal Owner(s) with Declaration ✓
Name Pocahontas Land Corporation
Address P.O. Box 1517
Bluefield, WV 24701

Name
Address

6) Inspector Jeffrey L. Smith
Address 5349 Karen Circle, Apartment 2102
Cross Lanes, WV 25313

Telephone 681-313-6743

(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.

Official Seal Notary Public
State of West Virginia
Phyllis A. Copley
144 Willard Circle Hurricane, WV 25526
My Commission Expires
September 16, 2018

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

Subscribed and sworn before me this 2nd day of June the year of 2016
Phyllis A. Copley
Notary Public

My Commission Expires September 16, 2018
Form WW-9

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JUN 10 2016
WV Department of
Environmental Protection

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(4/16)

API Number 47-043-02078
Operator's Well No. 805969

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

Operator Name **Chesapeake Appalachia, L.LC.** OP Code **494477557**

Watershed (HUC 10) **Ninemile Creek** Quadrangle **Branchland, 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.**

No LAND APPLICATION. gmm

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)
X Other (Explain: **Fluid will be hauled to Chesapeake's tank battery**)

Will closed loop system by 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 offiste 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 Virgniia 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 _____

Company Official (Typed Name) **David Gocke**

Company Official Title **Manager - Operations, Appalachia South**

Subscribed and sworn before me this 2nd day of June, 2016.

Phyllis A. Copley Notary Public.

My Commission Expires September 16, 2018

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Official Seal Notary Public
State of West Virginia
Phyllis A. Copley
144 Willard Circle Hurricane, WV 25526
My Commission Expires
September 16, 2018

4302078P

Form WW-9

API Number 47-043-02078
Operator's Well No. 805969

Proposed Revegetation Treatment: Acres disturbed 1.0 Prevegtation pH 6.1

Lime 3 Tons/acre or to correct to pH 6.0

Fertilizer type 10-20-20 or equivalent

Fertilizer amount 500 lbs/acre

Mulch 2 to 3 Tons/acre

Seed Mixtures

October 1st to April 30th		May 1st to September 305h	
Seed Type	lbs/acre	Seed Type	lbs/acre
Creeping Red Fescue	68.60%	Creeping Red Fescue	68.60%
Wheat	14.76%	Oats	14.18%
Annual Ryegrass	9.80%	Annual Ryegrass	9.80%
Ladino Clover	3.21%	Ladino Clover	3.21%

Attach:
Maps(s) of road, location, pit and propsed 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 sectin of involved 7.5' topographic sheet

Plan Approved by: _____

Comments: _____

Title: _____ Date: _____

Field Reviewed? ( ) Yes ( ) No

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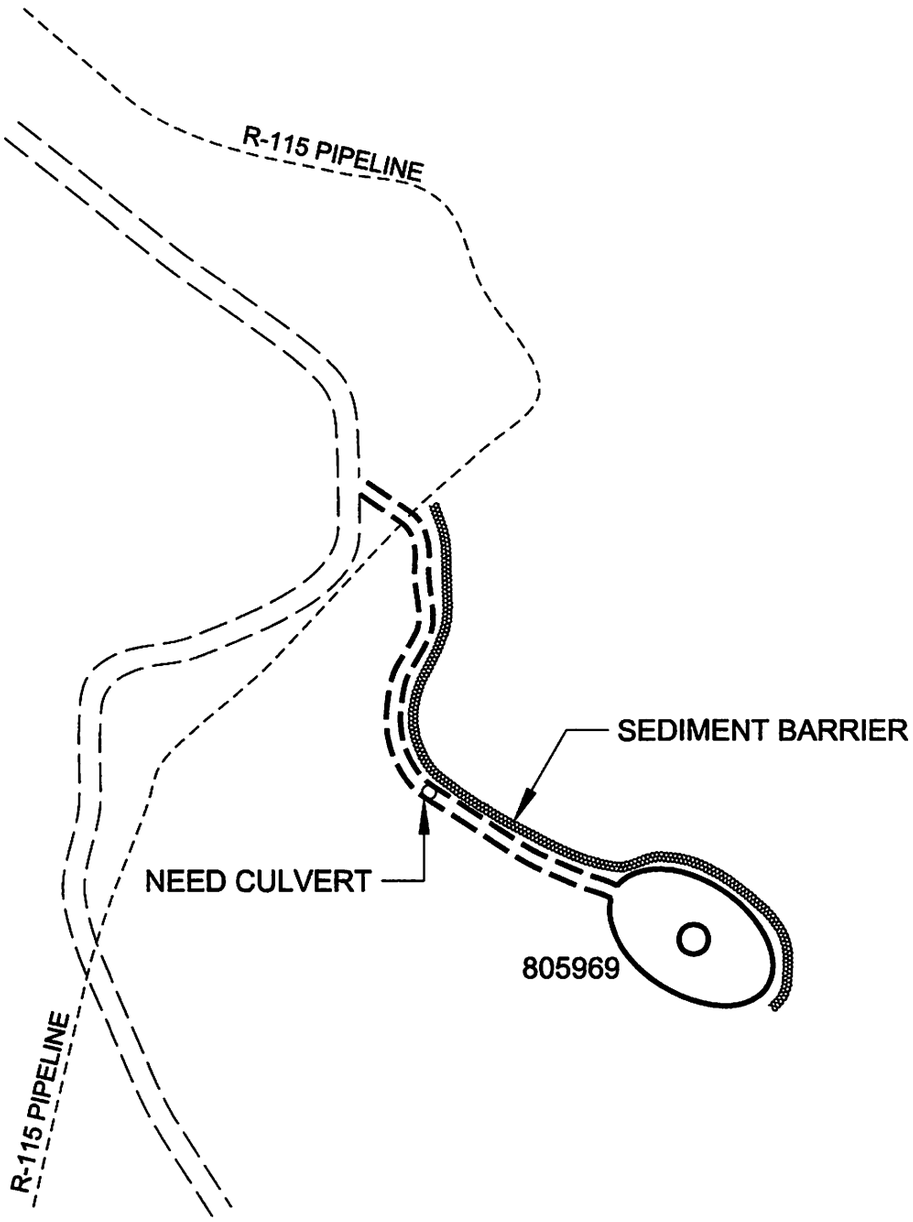
Office of Oil and Gas
JUN 10 2016
WV Department of

4302078P

CHESAPEAKE APPALACHIA, L.L.C.

RECLAMATION DIAGRAM
WELL LOCATION 805969

API 47-043-02078



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 show in approximate pre-planning configurations.

All culvert pipes will be a minimum of 15 inches in diameter. all culvert pipes installed will be accomanied 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 roacks of 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 contruction phase, where applicable, and in areas that will allow. These structures will be considered permanent and used as such.

Permanent seeding: See Attachment #1.

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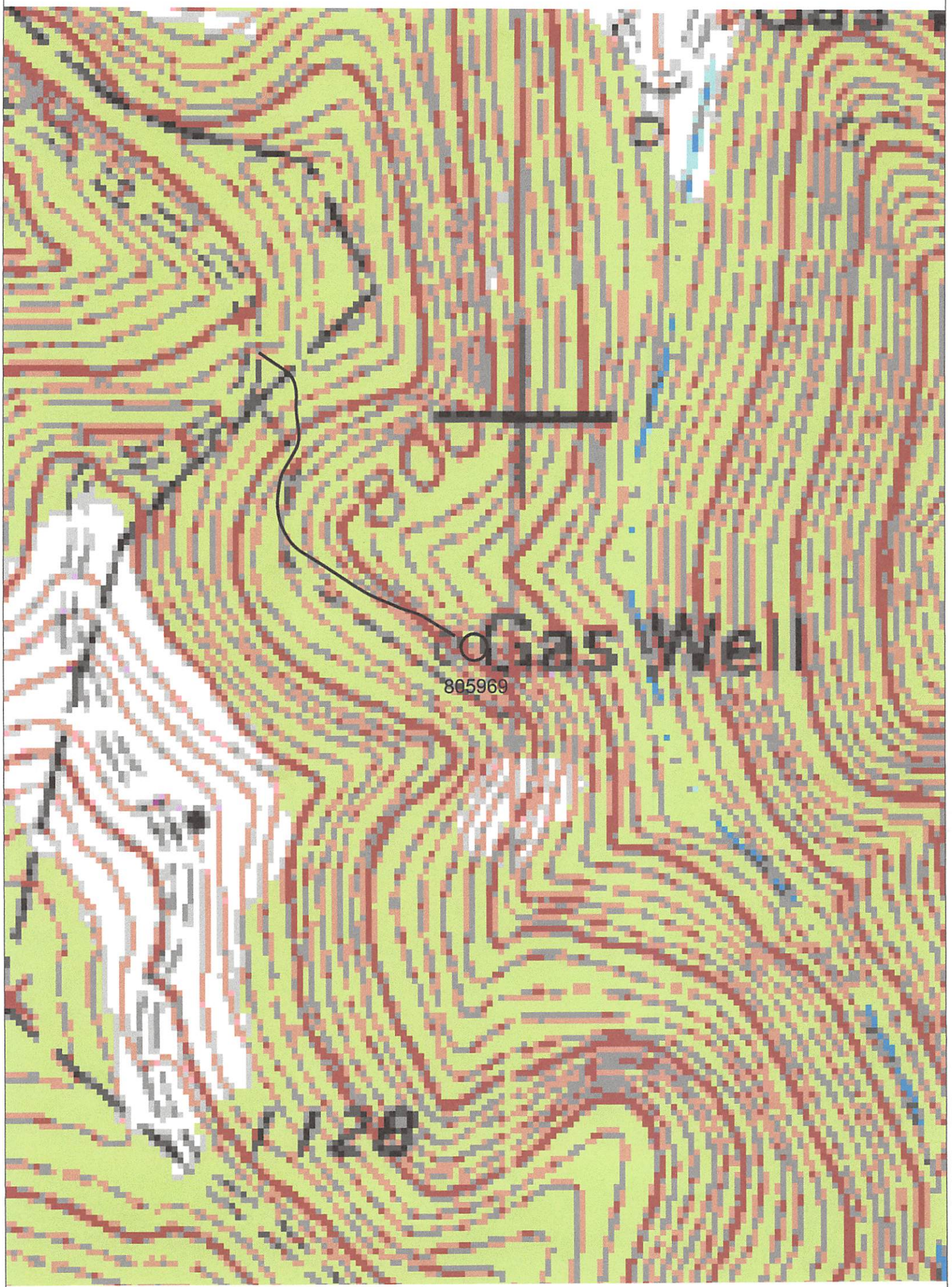
CHESAPEAKE ENERGY CORPORATION - EASTERN DIVISION
P.O. BOX 579 - 8165 COURT AVENUE - HAMLIN, WV 25523
304 824-5141 - FAX 304 824-2247

4302078P

CHESAPEAKE APPALACHIA, L.L.C.

TOPOGRAPHICAL MAP OF ACCESS AND WELL LOCATION 805969

API 47-043-02078



CHESAPEAKE ENERGY CORPORATION - EASTERN DIVISION
P.O. BOX 579 - 8165 COURT AVENUE - HAMLIN, WV 25523
304 824-5141 - FAX 304 824-2247

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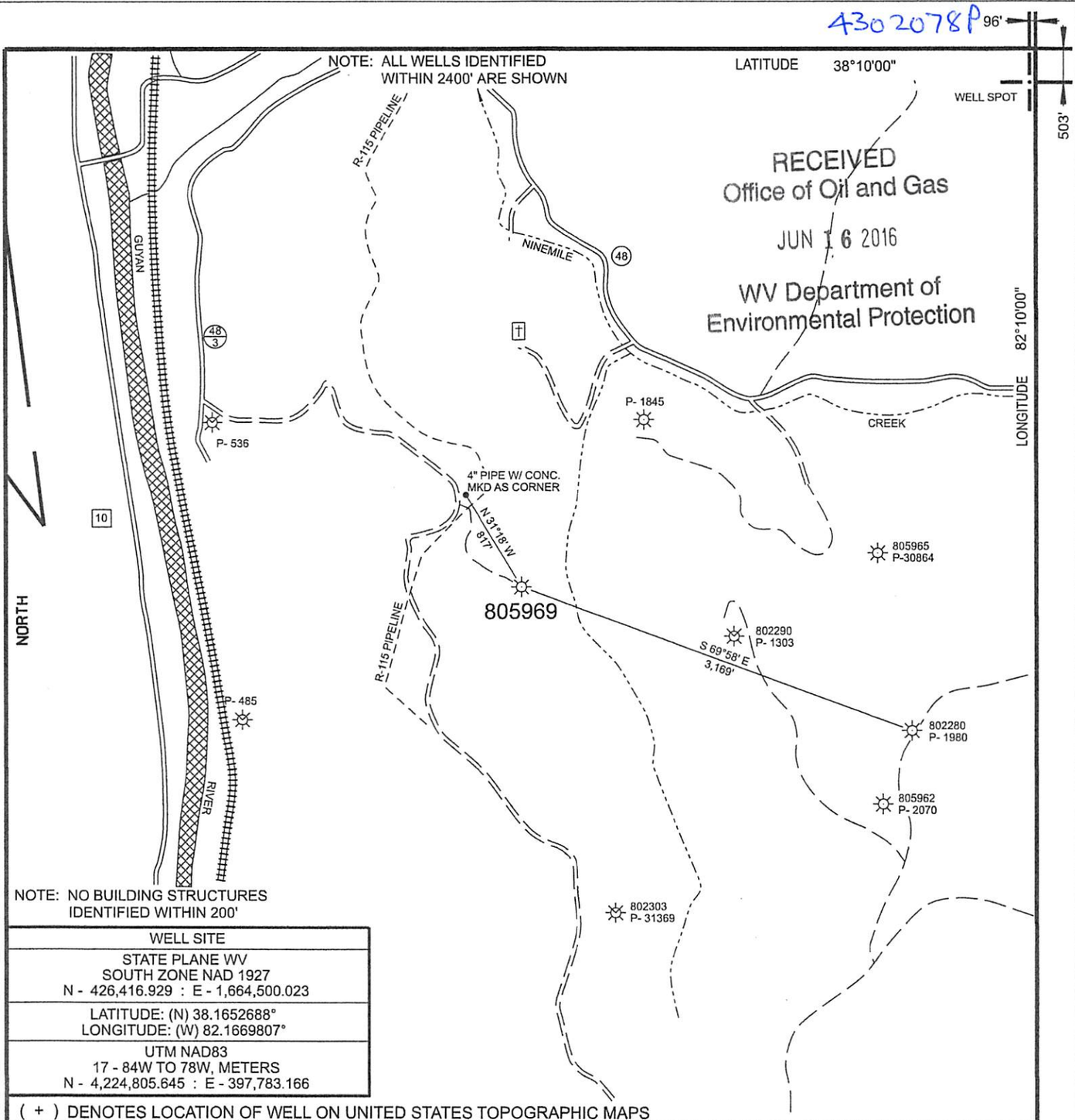

WELL SITE
STATE PLANE WV SOUTH ZONE NAD 1927 N - 426,416.929 : E - 1,664,500.023
LATITUDE: (N) 38.1652688° LONGITUDE: (W) 82.1669807°
UTM NAD83 17 - 84W TO 78W, METERS N - 4,224,805.645 : E - 397,783.166

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

FILE NO. 805696P&A.DGN
DRAWING NO. 805969 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

PAUL E. MILLER LICENSED No. 647 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR
PLACE SEAL HERE

STATE OF WEST VIRGINIA
DIVISION OF ENVIRONMENTAL PROTECTION
OIL AND GAS DIVISION

DATE JUNE 13, 20 16
OPERATOR'S WELL NO. 805969
API WELL NO.
47 (STATE) 043 (COUNTY) 2078 P (PERMIT)

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF "GAS,") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X
LOCATION: ELEVATION 830' WATER SHED NINEMILE CREEK
DISTRICT LAUREL HILL COUNTY LINCOLN
QUADRANGLE BRANCHLAND, WV 7.5'
SURFACE OWNER JEFF LUFT ACREAGE 174
OIL & GAS ROYALTY OWNER CHESAPEAKE APPALACHIA, L.L.C. LEASE ACREAGE 174
LEASE NO. 1-000011-001
PROPOSED WORK: DRILL ___ CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE ___ PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) _____
PLUG AND ABANDON X CLEAN OUT AND REPLUG ___
TARGET FORMATION _____ ESTIMATED DEPTH _____
WELL OPERATOR CHESAPEAKE APPALACHIA, L.L.C. DESIGNATED AGENT JESSICA GREATHOUSE
ADDRESS P.O. BOX 18496, OKLAHOMA CITY, OK 73154-0496 ADDRESS CHESAPEAKE APPLACHIA, L.L.C. PO BOX 6070, CHARLESTON, WV 25362

FORM WW-6
COUNTY NAME
PERMIT