



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 penalties 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

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.

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. 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
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 RECEIVED
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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
gdm

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#5969

HUNTINGTON DEVELOPMENT & GAS CO.

Well 805969 API 47-043-02078

5969

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.		CASTING AND TUBING SIZE USED IN DRILLING LEFT IN WELL 16 13 10 8 1/2 6 3/4 5 3/4-16 4 1/2 4 3 2			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 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 _____ ft.	
Rig Commenced _____ 192 Rig Completed _____ 192 Drilling Commenced 7-5-16 _____ 192 Drilling Completed 8-4-16 _____ 192 Drilling to cost _____ per foot Contractor is: Kirtley & Co. Address: Driller's Names E. Stanley & A.G. Craig		SHUT IN Date _____ _____ in _____ Tubing or Casting Size of Packer _____ Kind of Packer _____ 1st Perf. Set _____ from _____ 2nd Perf. Set _____ from _____				

DRILLER'S RECORD

Formation	Top	Bottom	Thickness	Remarks
Surface, gravel	0	20		Gas from Big Injun 043-2078 In 1961 tubing and packer was pulled New 3 1/2 tubing was ran and cemented above packer set @ 1493'. There were 60 sacks of cement used. The calculated TOC is 1000'. RECEIVED Office of Oil and Gas JUN 10 2016 WV Department of Environmental Protection
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		

07/01/2016

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

5) (a) Coal Operator
Name None

(b) Name _____
Address _____

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

(c) Name _____
Address _____

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.



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

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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07/01/2016

(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.L.C. 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.
gawm*

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: Fluid will be hauled to Chesapeake's tank battery)

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 2nd day of June, 2016.

Phyllis A. Copley

Notary Public.

My Commission Expires September 16, 2018



Form WW-9

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

Proposed Revegetation Treatment: Acres disturbed 1.0 Prevegation 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 30th	
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 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: _____

Title: _____ Date: _____

Field Reviewed? () Yes () No

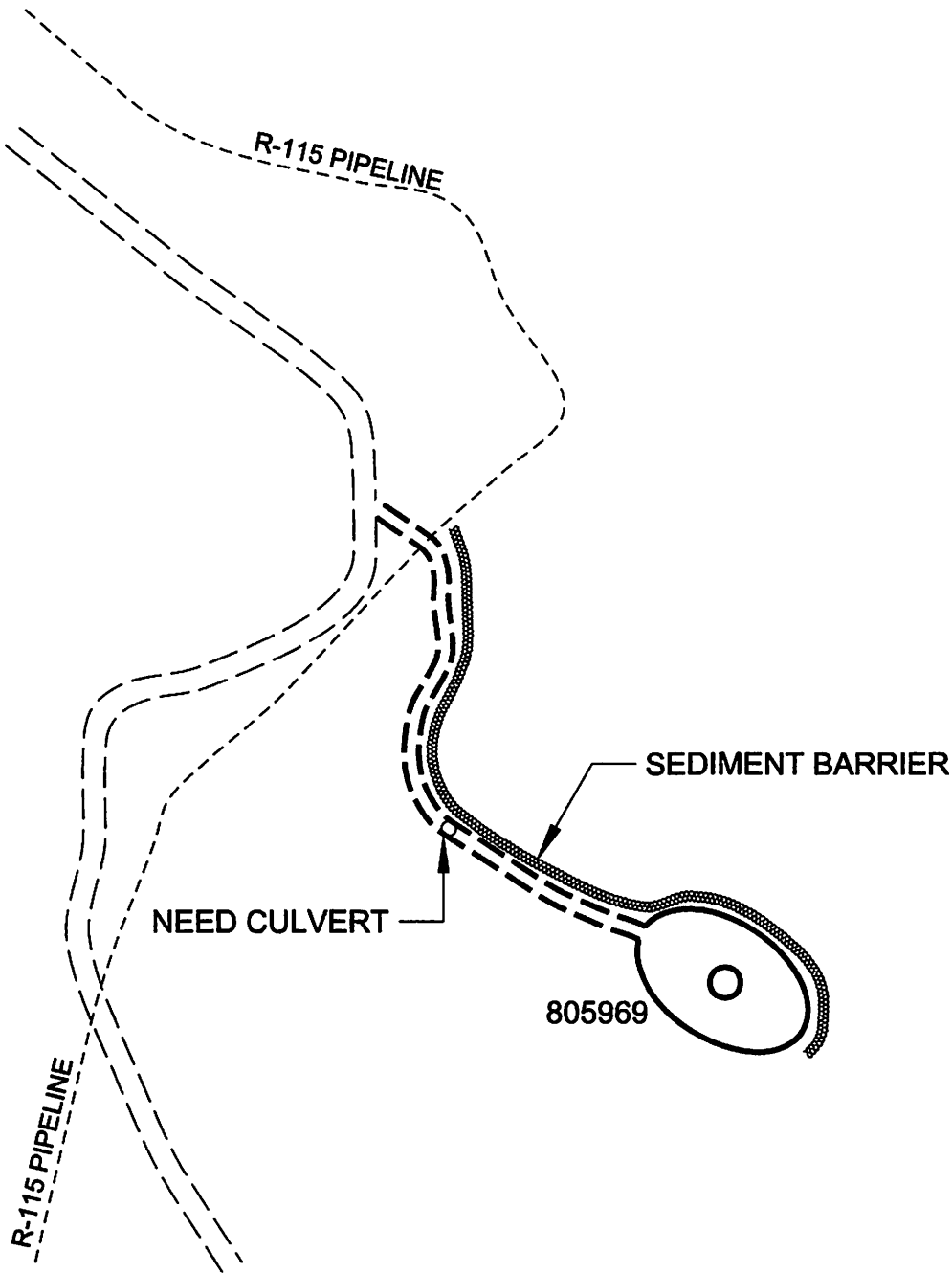
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CHESAPEAKE APPALACHIA, L.L.C.

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 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.

Permanent seeding: See Attachment #1.

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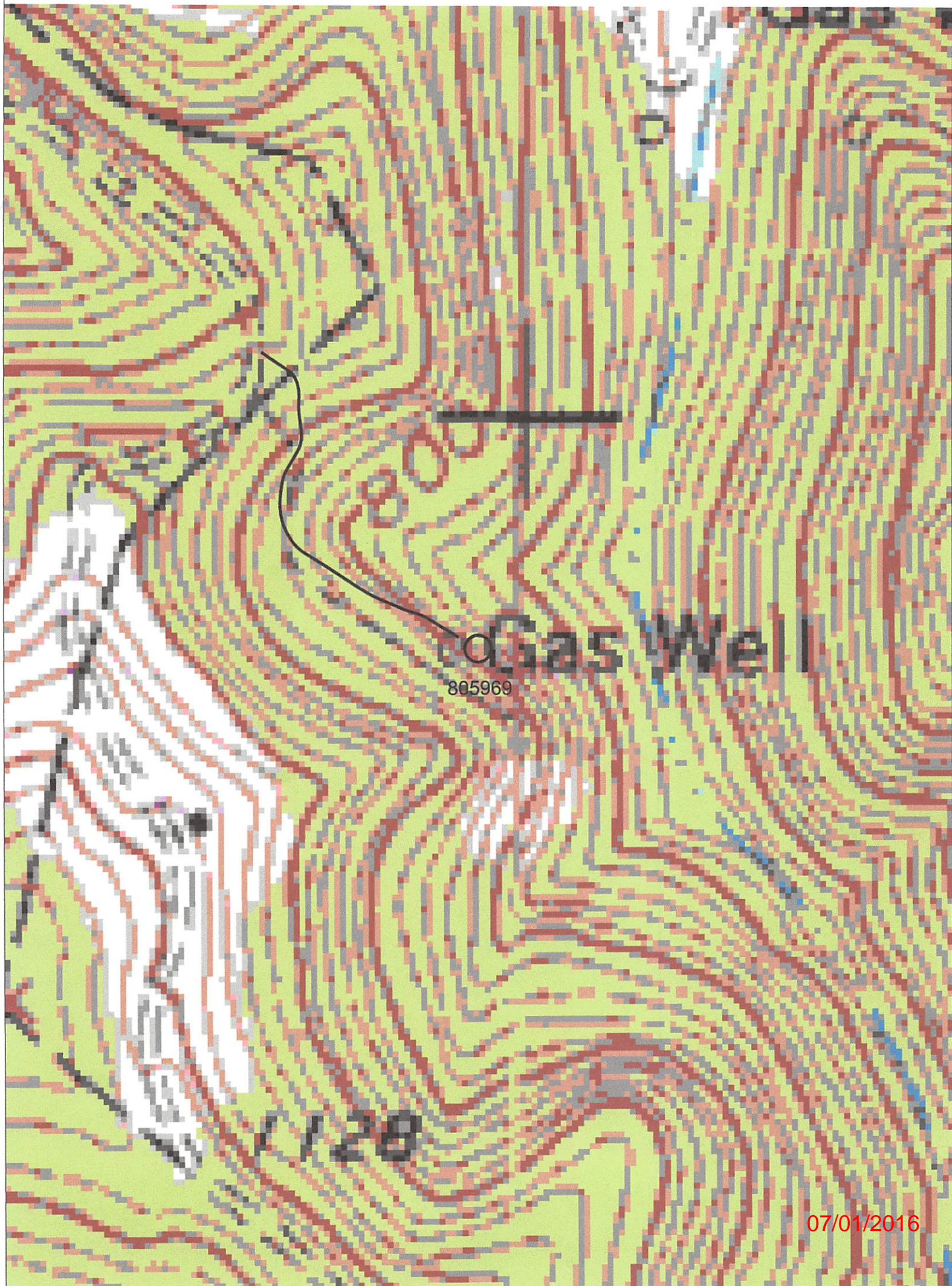
CHESAPEAKE ENERGY CORPORATION - EASTERN DIVISION
P.O. BOX 579 - 8165 COURT AVENUE - HAMLIN, WV 25523
304 824-5141 - FAX 304 824-2247

WV Department of
Environmental Protection

CHESAPEAKE APPALACHIA, L.L.C.

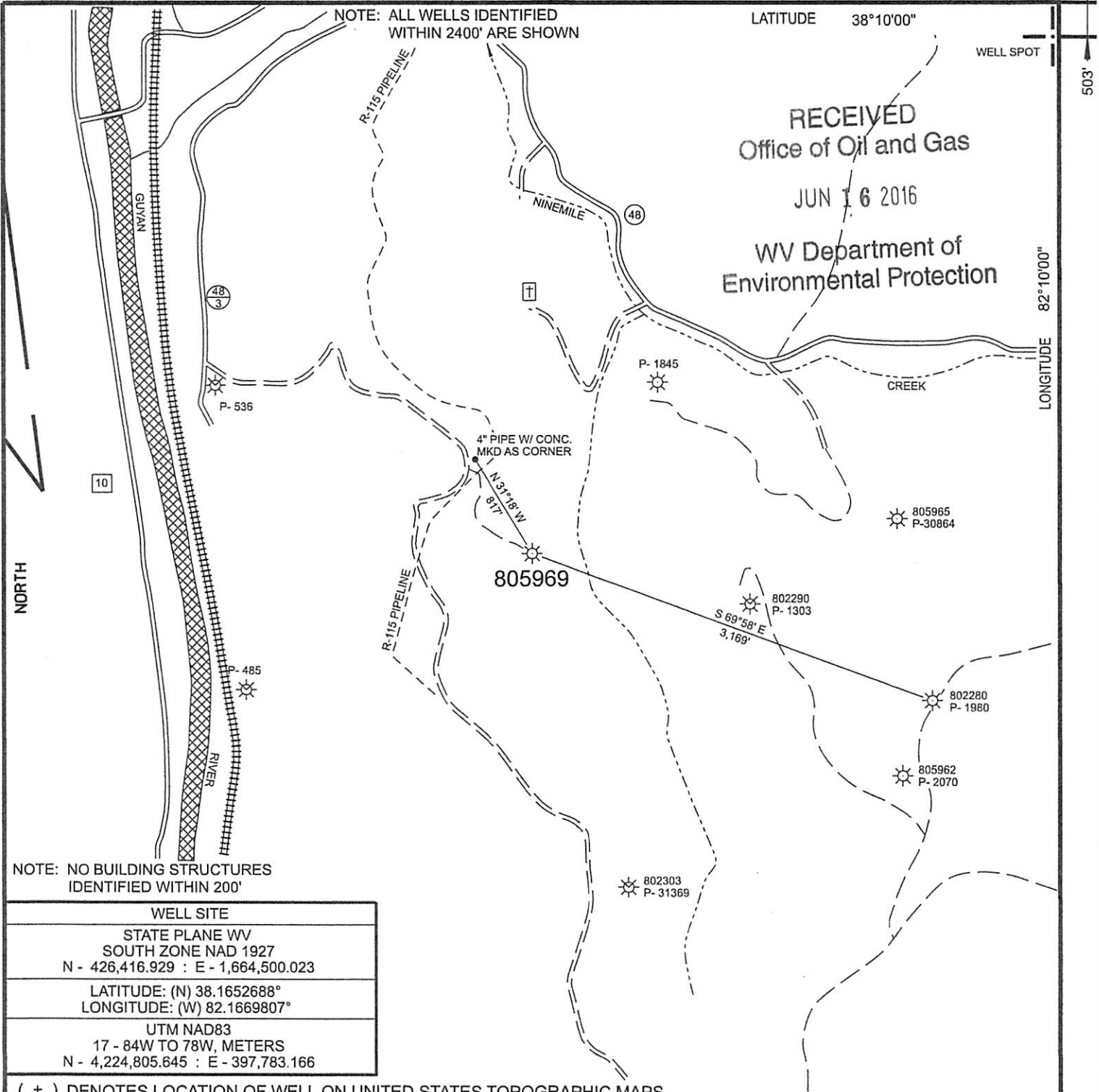
TOPOGRAPHICAL MAP OF ACCESS AND
WELL LOCATION 805969

API 47-043-02078



07/01/2016

4302078P 96'



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



STATE OF WEST VIRGINIA DIVISION OF ENVIRONMENTAL PROTECTION OIL AND GAS DIVISION		DATE <u>JUNE 13</u> , 20 <u>16</u> OPERATOR'S WELL NO. <u>805969</u> API WELL NO. <u>47</u> <u>043</u> <u>2078</u> <i>P</i>
WELL TYPE: OIL <input type="checkbox"/> GAS <input checked="" type="checkbox"/> LIQUID INJECTION <input type="checkbox"/> WASTE DISPOSAL <input type="checkbox"/> (IF "GAS,") PRODUCTION <input checked="" type="checkbox"/> STORAGE <input type="checkbox"/> DEEP <input type="checkbox"/> SHALLOW <input checked="" type="checkbox"/>	LOCATION: ELEVATION <u>830'</u> WATER SHED <u>NINEMILE CREEK</u> DISTRICT <u>LAUREL HILL</u> COUNTY <u>LINCOLN</u> QUADRANGLE <u>BRANCLAND, WV 7.5'</u>	STATE <u>47</u> COUNTY <u>043</u> PERMIT <u>2078</u> <i>P</i>
SURFACE OWNER <u>JEFF LUFT</u> ACREAGE <u>174</u> OIL & GAS ROYALTY OWNER <u>CHESAPEAKE APPALACHIA, L.L.C.</u> LEASE ACREAGE <u>174</u> LEASE NO. <u>1-000011-001</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) _____	COUNTY NAME
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 25362</u>	PERMIT <u>07/01/2016</u>

FORM WW-6