



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 04, 2016

WELL WORK PLUGGING PERMIT

Plugging

This permit, API Well Number: 47-4301994, 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: 4376
Farm Name: McCOMAS, JEFF
API Well Number: 47-4301994
Permit Type: Plugging
Date Issued: 04/04/2016

Promoting a healthy environment.

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.

4301994A

FORM WW-4 (B)
Observe
File Copy
(Rev. 2/01)

1) Date: 3/3/2016
2) Operator's Well No. 804376 P&A
3) API Well No. 47-043-01994

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 608' Watershed Nine Mile Creek of Guyan River
 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 9) Plugging Contractor
 Name Jeremy James Name Chesapeake Appalachia, L.L.C.
 Address P.O. Box 36 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

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

Work Order approved by Inspector

Date 3-2-2016

WV Department of
Environmental Protection

PLUGGING PROCEDURE

- 1) Prepare road and location, MIRU Service Rig
- 2) RIH with tools and check fill up at approximately 1800'
- 3) TIH with W.S. to 1780', spot gel
- 4) Spot 100' cement plug 1780'-1680', pull W.S. to 1340' *(Tag ^{plug} before continuing)*
- 5) Spot 100' cement plug 1340'-1240', pull W.S. to 1165'
- 6) Spot 125' cement plug 1165'-1040', pull W.S.
- 7) RIH with tools to check TOC. If top of cement is below 1070', then add cement to top of plug. *Add plug 650-550*
- 8) Cut 6 5/8" at free-point (approximately 450') and pull
- 9) Run W.S. to 450', spot gel
- 10) Spot 150' cement plug 450'-300', pull W.S.
- 11) RIH with tools to check TOC. If top of cement is below 350', then add cement to top of plug.
- 12) Attempt to pull 8 1/4"
 - A) If successful
 - a) TIH with W.S. to 230', spot gel
 - b) Spot 100' cement plug 230'-130'
 - c) Proceed to step 13
 - B) If unsuccessful
 - a) TIH with W.S. to 230', spot gel
 - b) Spot 100' cement plug 230'-130', pull W.S.
 - c) Cut 8 1/4" at free-point (approximately 115') and pull
 - d) Proceed to step 13
- 13) Pull or run W.S. to 115'
- 14) Spot 115' cement plug 115'-surface
- 15) Pull W.S. and top off with cement
- 16) Erect monument and reclaim as prescribed by law

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MAR 21 2016

WV Department of
Environmental Protection

Well 804376

API 47-043-0994P

UNITED FUEL GAS COMPANY

04 CLASS 2

WELL NO. 804376G

FARM NAME F. M. Thomas

LEASE NO. 38923

DISTRICT Laurel Hill COUNTY Lincoln

STATE W. Va.

MAP NO. 64 SQUARES 32-45

CORR. FACTOR NO. 7

METER NO.

LINE NO. R-39 1P

DATE	U.O.F. (M. Cu. Ft.)	I.R.P. (Lbs.)	PRODUCING SAND		CASING & TUBING RECORD		PACKER		VOLUME OF WELL				
			NAME	Q&S AT	TOTAL DEPTH	8 1/4"	7" O.D.	2 1/2"	SET AT	CALCULATION	VOLUME (Cu. Ft.)	VOLUME FACTOR	
9-29-17	1550	-	Big Inj. Inj.	1307	1336	160	5 3/4"	(1336)	(2x6-5/8)	1250	Est	(49)	4.9
11-14-32												(304)	30.4
12-3-53												427	42.7
7-9-58						1879							

Shut-in in 7" casing

Well - 1953

Failed to replace in 1953

YEAR	MONTH	REMARKS	OPEN FLOW (M.C.F.)	ROCK PRESS	LINE PRESS	MINUTE PRESSURE		1st MINUTE RISE ABOVE LINE	130 MINUTE FACTOR	DAILY PROD. (M.C.F.)	MONTHLY PRODUCTION (M. Cu. Ft.)	
						1st	5th				CALCULATED	CORRECTED
19 72	Jan.				64	65	66	1	42.7	28	1196	856
	Feb.				49	50	52	1		31	1366	1003
	Mar.				52	53	55	1		29	1238	932
	Apr.				41	42	45	1		30	1281	986
	May				49	50	52	1		31	1324	1033
	June				66	66	67	0.2		32	273	214
	July	14.73 6248			69	70	71	1		29	1238	979
	Aug.	8/25		84	71	71	72	0.2		31	265	211
	Sept.				72	73	73	1		29	1238	1000
	Oct.				75	75	76	0.2		30	256	213
	Nov.				56	57	59	1		31	1324	1144
	Dec.				59	60	61	1		30	1281	1111
	TOTAL				723					362		9927
	Average				60					27		
19 73	Jan.				56	56	59	0.6		32	820	706
	Feb.				54	55	57	1		32	1366	1180
	Mar.				46	47	49	1		29	1238	1064
	Apr.				45	45	47	0.4		30	512	431
	May	S.E. 5th St. David			76	76	76	-		16		
	June	S#1 T.O. 5/31		82	60	61	62	1		15	641	540
	July				66	67	68	1		30	1281	1067
	Aug.				67	68		1		31	1324	1083
	Sept.				69	70		1		32	1366	1094
	Oct.				58	59		1		30	1281	998
	Nov.				67	68		1		31	1324	993
	Dec.				47	48		1		30	1281	955
	TOTAL				711					338		19111
	Average				59					30		
19 74	Jan.				49	50		1		31	1324	1007
	Feb.				70	71		1		31	1324	996
	Mar.				74	75		1		28	1196	893
	Apr.				72	73		1		31	1324	989
	May				80		81	0.2		30	256	188
	June				88		89	0.2		31	265	194
	July				88	89		1		30	1281	942
	Aug.				87	88		1		31	1324	985
	Sept.				88	87	88	1		29	1238	920
	Oct.				74		75	0.2		30	256	190
	Nov.				70	71		1		31	1324	991
	Dec.				57	58		1		30	1281	951
	TOTAL				896					363		9246
	Average				75					25		
19 75	Jan.				57	58		1		31	1324	952
	Feb.				55	56		1		31	1324	
	Mar.				57	58		1		28	939	
	Apr.											
	May											
	June											
	July											
	Aug.											
	Sept.											
	Oct.											
	Nov.											
	Dec.											
	TOTAL											
	Average											

Calc. Forming Sur. off set
 No. Cook - shown
 Top of Salt Sand - 1447
 Big Lin. Top - MAR 10 2016

WV Department of Environmental Protection

WW4-A
Revised
2/01

1) Date: 3/3/2016
2) Operator's Well No. 804376 P&A
3) API Well No. 47-043-01994

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 Edward K. Herbert ✓
Address 4 South View Lane
Huntington, WV 25705

5) Coal Operator
(a) Name None
Address _____

(b) Name _____
Address _____

Coal Owner(s) with Declaration
(b) Name Lilly Browning
Address 200 2nd Street
Apartment 209 ✓
Point Pleasant, WV 25550

(c) Name _____
Address _____

Name _____
Address _____

6) Inspector Jeremy James
Address P.O. Box 36
Clendenin, WV 25045

Coal Lessee with Declaration
(c) Name None
Address _____

Telephone 304-951-2596

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 3rd day of March the year of 2016
Phyllis A. Copley Notary Public
My Commission Expires September 16, 2018
Form WW-9

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WV Department of
Environmental Protection

API Number 47-043-01994
Operator's Well No. 804376 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.L.C. OP Code 494477557

Watershed Nine Mile Creek of Guyan River Quadrangle Branchland, WV 7.5'

Elevation 608' County Lincoln District Laurel Hill

Description of anticipated Pit Waste: Plugging Returns/Cement

Will a synthetic liner be used in the pit? Yes minimum of 20 mil thick synthetic liner

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 _____)

Proposed Work For Which Pit Will Be Used:

- Drilling
- Workover
- Swabbing
- Plugging
- Other (Explain _____)

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on December 31, 1999, 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 3rd day of March, 2016.

Phyllis A. Copley

Notary Public.

My Commission Expires September 16, 2018

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Attachment #1

API #: 47-043-01994
 Operator's Well No. 804376 P&A

LEGEND

Property Boundary	Diversion
Road	Spring
Existing Fence	Wet Spot
Planned Fence	Drain Pipe with size in inches
Stream	Waterway
Open Ditch	Cross Drain
Rock	Artificial Filter Strip
North	Pit: cut walls
Buildings	Pit: compacted fill walls
Water wells	Area for Land Application of Pit Waste
Drill site	

Proposed Revegetation Treatment: Acres Disturbed 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 Tons/acre (500 lbs minimum)
 Mulch Weed Free Straw 2 Tons/acre

Seed Mixtures

October 1st to April 30th

Creeping Red Fescue	68.60%
Wheat	14.76%
Annual Ryegrass	9.80%
Ladino Clover	3.21%

May 1st to September 30th

Creeping Red Fescue	68.60%
Wheat	17.18%
Annual Ryegrass	9.80%
Ladino Clover	4.97%

Total seeding will be 50 lbs/acre

Attach:
 Drawing(s) of road, location, pit and proposed area for land application.
 Photocopied section of involved 7.5' topographic sheet.

Plan Approved by:

Title: inspector OOG

Date: 3-16-16

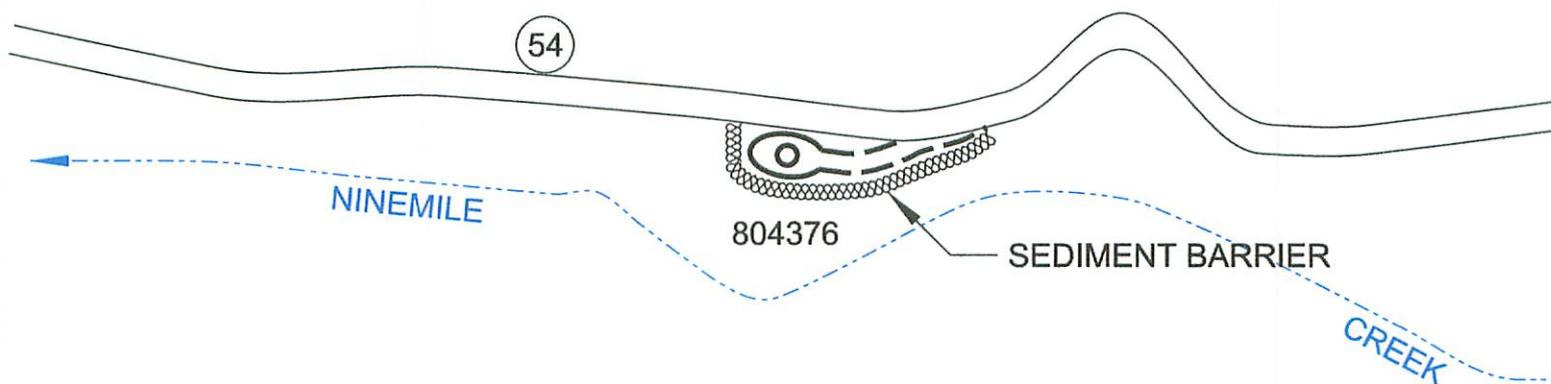
Field Reviewed? () Yes () No

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 MAR 21 2016
 WV Department of
 Environmental Protection

CHESAPEAKE APPALACHIA, L.L.C.

RECLAMATION DIAGRAM
WELL LOCATION 804376

API 47-043-01994



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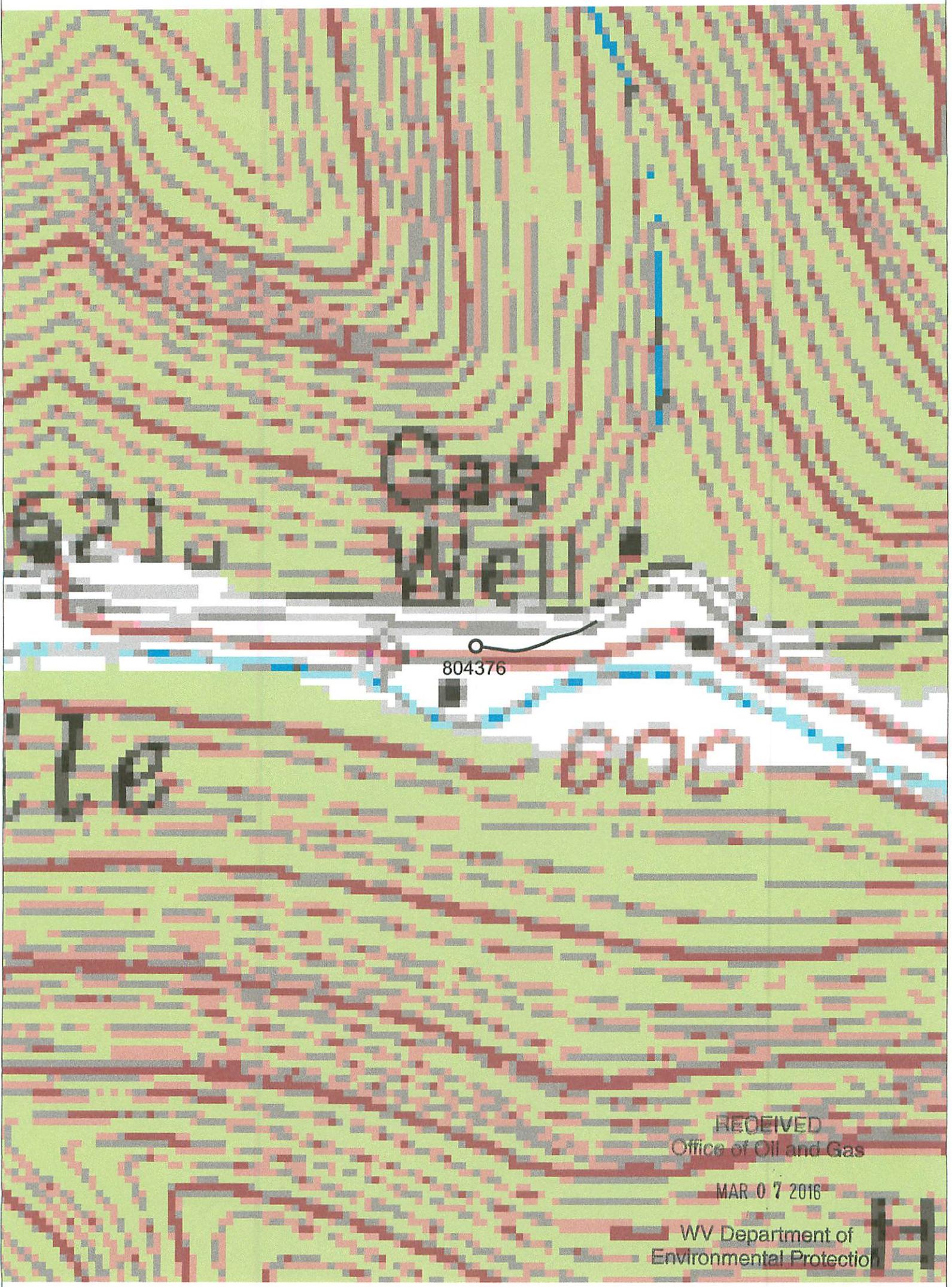
CHESAPEAKE ENERGY CORPORATION - EASTERN DIVISION
P.O. BOX 579 - 8165 COURT AVENUE - HAMLIN, WV 25523
304 824-5141 - FAX 304 824-2247

4301994P

CHESAPEAKE APPALACHIA, L.L.C.

TOPOGRAPHICAL MAP OF ACCESS AND
WELL LOCATION 804376

API 47-043-01994



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Office of Oil and Gas

MAR 07 2016

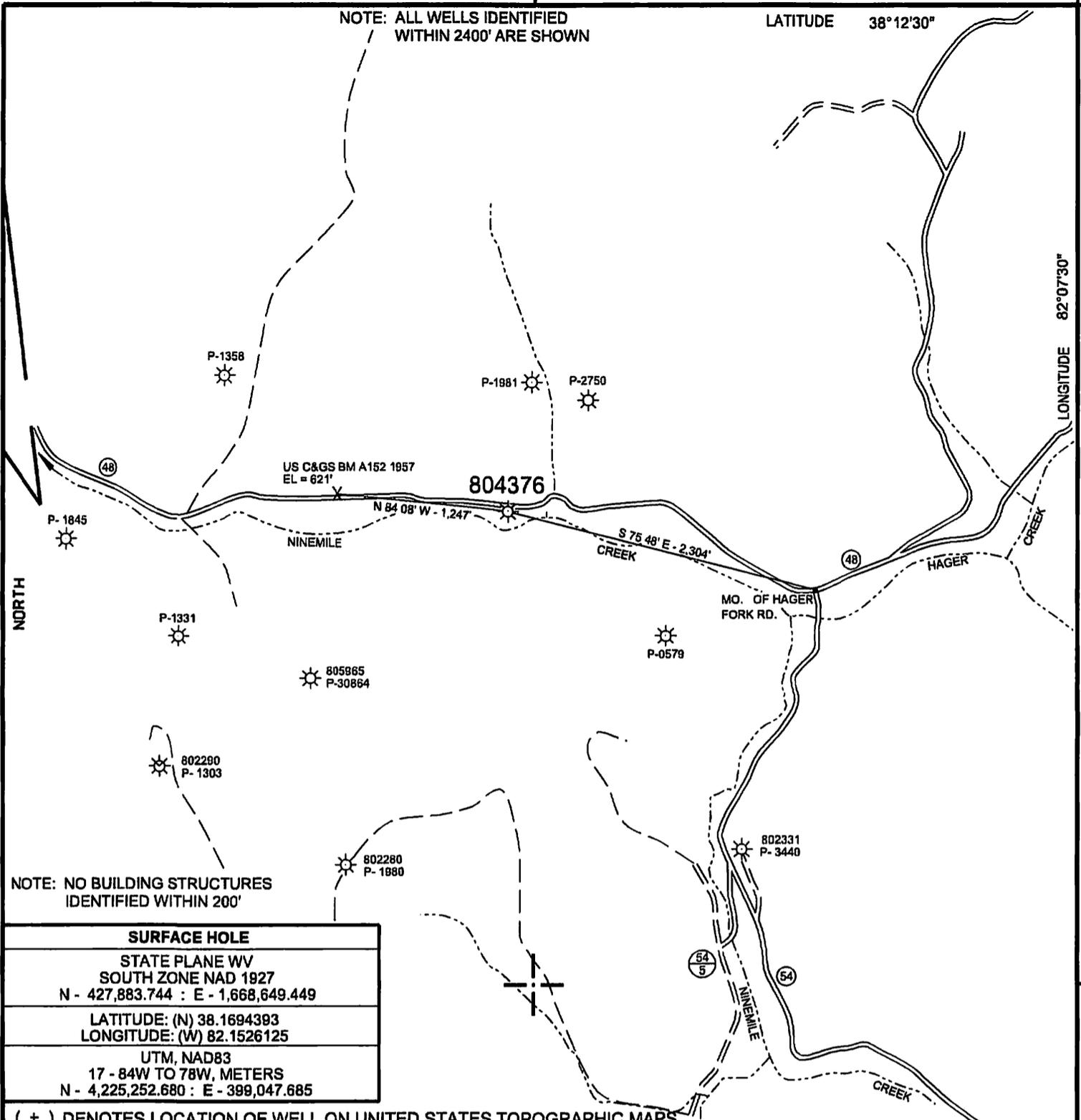
WV Department of
Environmental Protection

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

3,966'

NOTE: ALL WELLS IDENTIFIED WITHIN 2400' ARE SHOWN

LATITUDE 38° 12' 30"



NOTE: NO BUILDING STRUCTURES IDENTIFIED WITHIN 200'

SURFACE HOLE	
STATE PLANE WV SOUTH ZONE NAD 1927 N - 427,883.744 : E - 1,668,649.449	
LATITUDE: (N) 38.1694393 LONGITUDE: (W) 82.1526125	
UTM, NAD83 17 - 84W TO 78W, METERS N - 4,225,252.680 : E - 399,047.685	

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

FILE NO.	804376 P&A.DGN
DRAWING NO.	804376 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 MARCH 3, 20 16
OPERATOR'S WELL NO. 804376
API WELL NO.

47 043 01994 P
STATE COUNTY PERMIT

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
(IF "GAS,") PRODUCTION STORAGE DEEP SHALLOW

LOCATION: ELEVATION 608' WATER SHED NINE MILE CREEK OF GUYAN RIVER
DISTRICT LAUREL HILL COUNTY LINCOLN
QUADRANGLE BRANCLAND, WV 7.5'

SURFACE OWNER EDWARD K. HERBERT ACREAGE 12
OIL & GAS ROYALTY OWNER LILY BROWNING LEASE ACREAGE 12
LEASE NO. 1-038923-000

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 CLEAN OUT AND REPLUG
TARGET FORMATION _____ ESTIMATED DEPTH _____
WELL OPERATOR CHESAPEAKE APPALACHIA, LLC DESIGNATED AGENT JESSICA GREATHOUSE
ADDRESS PO BOX 18486, OKLAHOMA CITY, OK 73154-0486 ADDRESS CHESAPEAKE APPALACHIA LLC, PO BOX 8070, CHARLESTON, WV 25382

FORM WW-6

COUNTY NAME PERMIT