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 20, 2015

WELL WORK PLUGGING PERMIT

Plugging

This permit, API Well Number: 47-4300558, 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: 2253
Farm Name: COOK, I. N., ETAL
API Well Number: 47-4300558
Permit Type: Plugging
Date Issued: 04/20/2015

4300558P

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.

4300558P

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

1) Date: 2/27/2015
2) Operator's Well No. 802253 P&A
3) API Well No. 47-043-00558

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 784' Watershed Tributary of Guyan River
District Sheridan 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 Ralph Triplett
Address 5539 McClellan Highway
Branchland, WV 25506

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

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Office of Oil and Gas

MAR 20 2015

WV Department of
Environmental Protection

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

Work Order approved by Inspector _____ Date 3-18-15

United Fuel Gas Company
COMPANY

4300558F Well 802253
API 47-043-00558

SERIAL WELL NO. 2253 LEASE NO. MAP SQUARE 32-49

RECORD OF WELL NO. 2253 on the
Cook & Stoffler farm of Acres
in Branchland District
Sheridan- Lincoln County
State of: West Virginia
Field: Branchland
Rig Commenced 8/16/44 194
Rig Completed 8/23/44 194
Drilling Commenced 9-21-44 194
Drilling Completed 10-18-44 194
Drilling to cost per foot
Contractor is: United Fuel Gas Co.
Address: Branchland, W.Va.

Driller's Name Walter G. Wright
Ralph Duffield

1300'

Elevation:

CASING AND TUBING

SIZE	WEIGHT	USED IN DRILLING	LEFT IN WELL
2"	4.6	1313-7	1313-7

SHUT IN
Date 10-26-44
2 in. Tubing or
Size of Packer 3"x6-5/8"
Kind of Packer Rock Wall
None
1st. Perf. Set from
2nd Perf. Set from

TEST BEFORE SHOT
2 /10 of Water in 2 inch
/10 of Merc. in inch
Volume 60 M Cu. ft.

TEST AFTER SHOT
2 /10 of Water in 2 inch
/10 of Merc. in inch
Volume 60 M Cu. ft.
6 days Hours After Shot
Rock Pressure 110# 72 hrs.
Date Shot 10-20-44
Size of Torpedo 6100# Gel.
Oil Flowed bbls. 1st 24 hrs.
Oil Pumped bbls. 1st 24 hrs.
Well abandoned and
Plugged 194

DRILLER'S RECORD

FORMATION	TOP	BOTTOM	THICKNESS	REMARKS
Begin drilling	1538			
Slate & Shells	1538	1980	442	
Brown Shale	1980	2000	20	
Berea	2000	2020	20	Small increase of gas at 2004'
Slate & Shells	2020	2300	280	no gauge taken
Brown Shale	2300	2360	60	
Slate & Shells	2360	2550	190	
Brown Shale	2550	2575	25	
Slate	2575	2810	235	
Brown Shale	2810	2840	30	
Slate	2840	2900	60	
Brown Shale	2900	3000	100	
Slate & Shells	3000	3030	30	
Brown Shale	3030	3190	160	Gas at 3030' gas at 3180' total before
White Slate	3190	3215	25	shot 2/10 Water 2" Dropped with 6100#
Total depth		3215		Top of shot 2280 bottom 3200
				test after shot 60 MCF

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FORM U-97

4300558P

Well 802253
API 47-043-00558P

UNITED FUEL GAS COMPANY
(INCORPORATED)

SERIAL WELL NO. 2253 LEASE NO. _____ MAP SQUARE 32-49

RECORD OF WELL No. 2253 on the
Cook Stoffler Farm of Acres
in Sheridan District
Lincoln County
Branchland Field, State of W.Va.

Rig Commenced 192
Rig Completed 192
Drilling Commenced August 13, 1915 192
Drilling Completed Sept. 9, 1915 192
Drilling to cost per foot
Contractor is: H. G. Welsh
Address:

Drillers' Names

CASING AND TUBING

SIZE	USED IN DRILLING	LEFT IN WELL
16		
13		
10		12' 6"
8 1-4		
6 5-8		1249' 7"
5 3-16		
4 7-8		
4		
3		
2		1533' 6"

SHUT IN
Date Sept. 11, 1915
2 in Tubing ~~or Casing~~
Size of Packer 6-5/8"x2"
Kind of Packer Spec. Gas
1st Perf. Set on ~~top~~ bottom
2nd Perf. Set 53' ~~from~~ bottom

TEST BEFORE SHOT
12 of Water in 2 inch
10ths
of Merc. in inch
10ths
Volume Cu. ft.

TEST AFTER SHOT
of Water in inch
10ths
50 of Merc. in 2 inch
10ths
Volume Cu. ft.
Rock Pressure 292#
Date Shot Sept. 10, 1915
Size of Torpedo 90 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	REMARKS
Coal	496	500	4	Gas Pay 1448'-1484'.
Salt Sand	610	1010	400	Packer set 151' from bottom of hole
Little Lime	1210	1230	20	on 2" tubing.
Pencil Cave	1230	1234	4	
Big Lime	1234	1415	180	
Big Injun Sand	1442	1489	47	
Slate	1489	1538	49	
TOTAL DEPTH		1538'		
		1720		
		3258		

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4300558P

API: 47-043-00558

802253 P&A PROCEDURE

NOTE: Hole is caved in at approximately 1850'.

1) Prepare road and location, MIRU service rig

2) Run in hole to check top of fill approximately at 1850'

3) If hole is dry, pump 150' cement plug from 1850'-1700', chase with 1 bbl gel, WOC. If fluid level is above 1450', proceed to step 5.

4) Run in hole with tools to check top of plug. If TOC is below 1750', then reset plug.

5) Attempt to pull 2" and packer

   A) If successful

      a) Run W.S. to top of first plug, spot gel, pull W.S. to 1450'

      b) Spot 100' cement plug 1450'-1350', pull W.S. to 1275'

      c) Spot 100' from 1275'-1175', pull W.S.

      d) Proceed to step 6

   B) If unsuccessful

      a) Cut 2" at free-point (approximately 1280') and pull

      b) Run W.S. as deep as possible, approximately 1280'-1300'

      c) Spot 150' cement plug approximately 1300'-1150', pull W.S.

      d) Proceed to step 6

6) Run in hole with tools to check top of plug. If TOC is below 1200', then reset plug.

7) Cut 6 5/8" at free-point (approximately 800') and pull

8) Run W.S. to 800', spot gel

9) Spot 100' cement plug 800'-700', pull W.S. to 590'

10) Spot 130' cement plug 590'-460', pull W.S. to 130'

11) Spot 130' cement plug 130'-surface

12) Pull W.S. and top off with cement

13) Erect monument and reclaim as prescribed by law

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4300558 P

WW4-A
Revised
2/01

1) Date: 2/27/2015
2) Operator's Well No. 802253 P&A
3) API Well No. 47-043-00558

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 Kenneth Thacker
Address P.O. Box 494
Branchland, WV 25506

(b) Name
Address

(c) Name
Address

5) Coal Operator
(a) Name None
Address

Coal Owner(s) with Declaration
(b) Name Mary F. Mutschelknaus
Address P.O. Box 351
Salem, WV 26426

Name
Address

Coal Lessee with Declaration
(c) Name None
Address

6) Inspector Ralph Triplett
Address 5539 McClellan Highway
Branchland, WV 25506

Telephone 304-389-0350

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 27th day of February the year of 2015

Phyllis A. Copley
Notary Public

My Commission Expires September 16, 2018
Form WW-9

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WV Department of
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Well 802253
API 47-043-00558

4300558P

7014 2120 0003 6636 6214

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BRANCHLAND WV 25506

OFFICIAL USE

Postage	$ $1.40	0523
Certified Fee	$3.30	01
Return Receipt Fee (Endorsement Required)	$2.70	Postmark Here
Restricted Delivery Fee (Endorsement Required)	$0.00	
Total Postage & Fees	$ $7.40	03/02/2015

802253

Sent To: Kenneth Thacker
Street & Apt. No., or PO Box No.: PO Box 494
City, State, ZIP+4: Branchland WV 25506

PS Form 3800, July 2014 — See Reverse for Instructions

CK 5246038 100.00

7014 2120 0003 6636 6207

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For delivery information, visit our website at *www.usps.com®*.

SALEM WV 26426

OFFICIAL USE

Postage	$ $1.40	0523
Certified Fee	$3.30	01
Return Receipt Fee (Endorsement Required)	$2.70	Postmark Here
Restricted Delivery Fee (Endorsement Required)	$0.00	
Total Postage & Fees	$ $7.40	03/02/2015

802253

Sent To: Mary F. Mutschel/Knaus
Street & Apt. No., or PO Box No.: P.O. Box 357
City, State, ZIP+4: Salem WV 26426

PS Form 3800, July 2014 — See Reverse for Instructions

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Rev. 02/01

API Number 47-043-00558
Operator's Well No. 802253 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 Tributary of Guyan River Quadrangle Branchland, WV 7.5'

Elevation 784' County Lincoln District Sheridan

Description of anticipated Pit Waste: Plugging Returns/Cement

Will a synthetic liner be used in the pit? Yes

Proposed Disposal Method For Treated Pit Wastes:

X 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
X 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 _____

Company Official (Typed Name) Dave Gocke

Company Official Title Manager - Operations, Appalachia South

Subscribed and sworn before me this 27th day of February, 2015.

Phyllis A. Copley Notary Public.

My Commission Expires September 16, 2018

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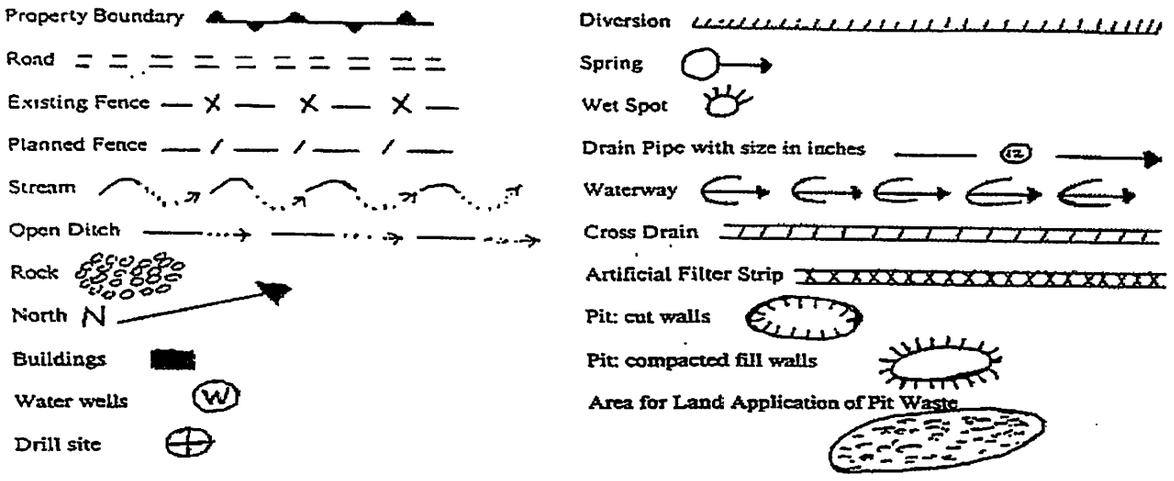
Official Seal
Notary Public
State of West Virginia
Phyllis A. Copley
144 Willard Wise Hurricane, WV 25526
My Commission Expires
September 16, 2018

4300558P

Attachment #1

API #: 47-043-00558
Operator's Well No. 802253 P&A

LEGEND



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 TON lbs/acre (500 lbs minimum)

Mulch Hay 2 Tons/acre

Seed Mixtures

Area I		Area II	
Seed Type	**lbs/acre**	**Seed Type**	**lbs/acre**
CHESAPEAKE CONTRACTOR'S MIX	40	ORCHARD GRASS	15
ALSIKE CLOVER	5	ALSIKE CLOVER	5
ANNUAL RYE	15		

Attach:
Drawing(s) of road, location, pit and proposed area for land application.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: [signature]

Title: inspector 006

Date: 3-18-15

Field Reviewed? (✓) Yes ( ) No

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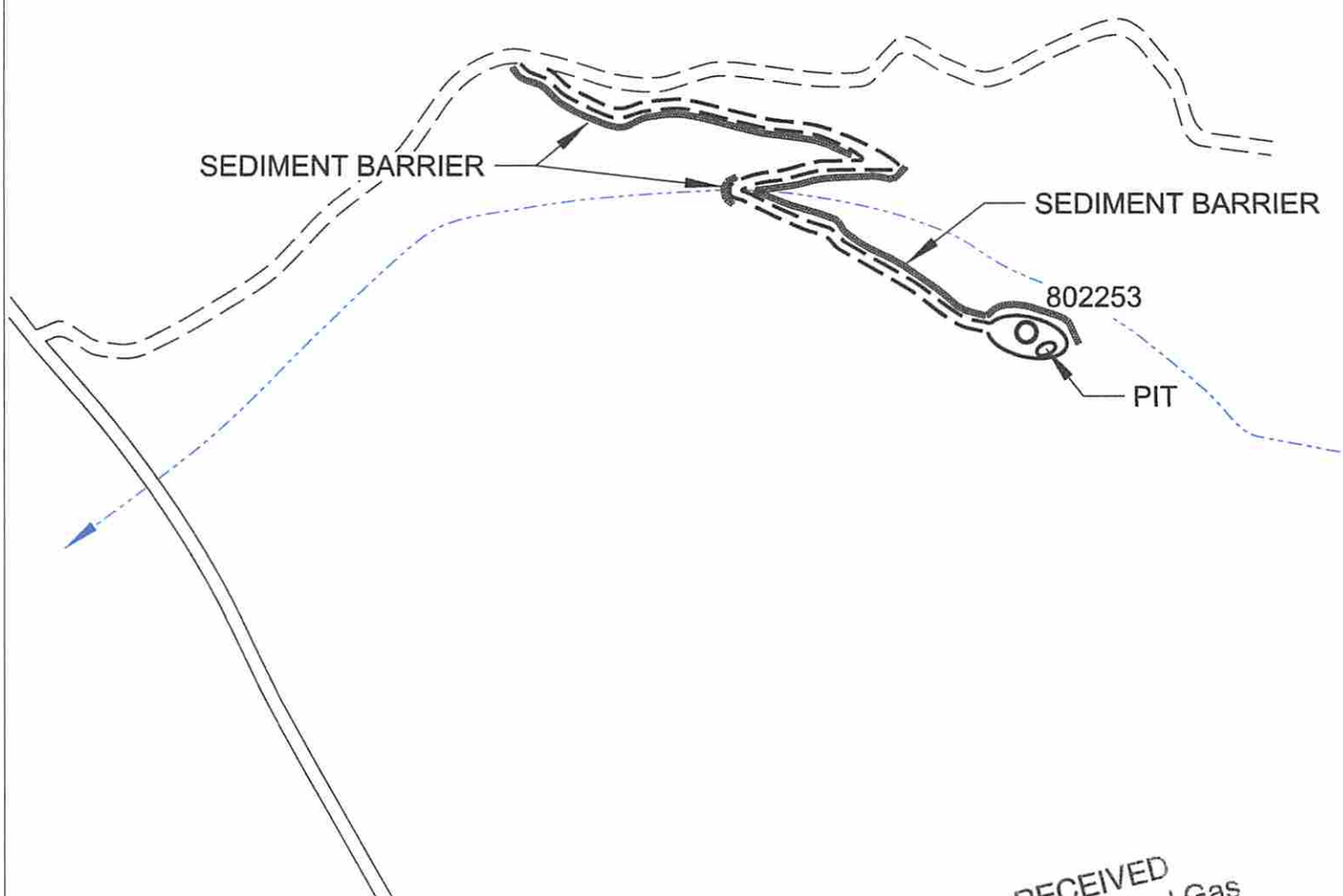
CHESAPEAKE APPALACHIA, L.L.C.

RECLAMATION DIAGRAM
WELL LOCATION 802253

API 47-043-00558



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 or 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 control 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

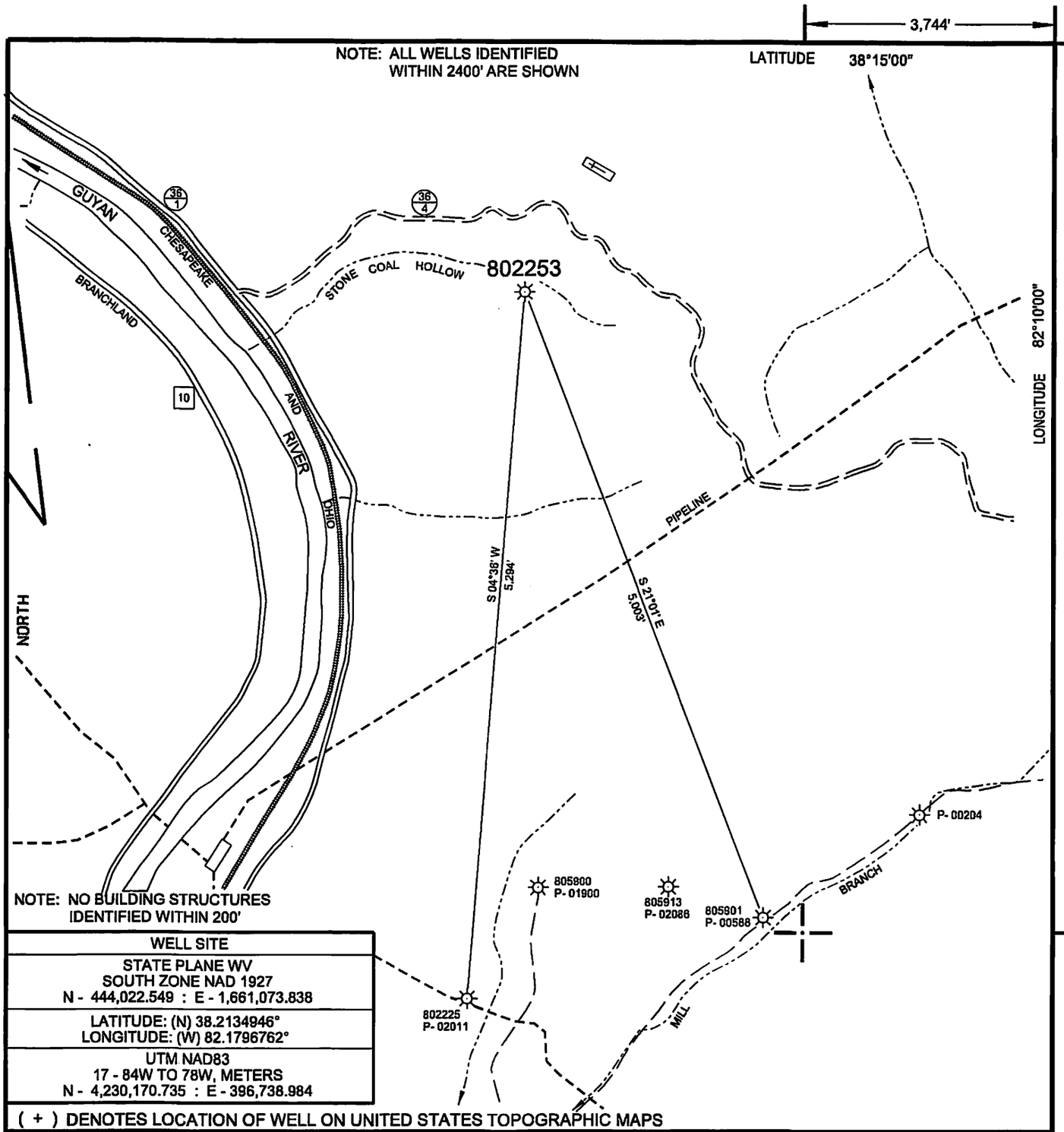
4300558P

CHESAPEAKE APPALACHIA, L.L.C.

TOPOGRAPHICAL MAP OF ACCESS AND WELL LOCATION 802253

API 47-043-00558

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



WELL SITE
STATE PLANE WV SOUTH ZONE NAD 1927 N - 444,022.549 : E - 1,661,073.838
LATITUDE: (N) 38.2134946° LONGITUDE: (W) 82.1796762°
UTM NAD83 17 - 84W TO 78W, METERS N - 4,230,170.735 : E - 396,738.984

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

FILE NO. 802253 P&A.DGN
DRAWING NO. 802253 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) _____

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 JANUARY 27, 20 15
OPERATOR'S WELL NO. 802253
API WELL NO.
47 (STATE) 043 (COUNTY) 00558 P (PERMIT)

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

LOCATION: ELEVATION 784' WATER SHED TRIBUTARY OF GUYAN RIVER
DISTRICT SHERIDAN COUNTY LINCOLN
QUADRANGLE BRANCHLAND, WV 7.5'

SURFACE OWNER KENNETH THACKER ACREAGE --
OIL & GAS ROYALTY OWNER CHESAPEAKE APPALACHIA, L.L.C. LEASE ACREAGE --
LEASE NO. FEE LAND

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