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

May 27, 2016

WELL WORK PLUGGING PERMIT

Plugging

This permit, API Well Number: 47-3901765, 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: 9083
Farm Name: DICKINSON, SALLIE J.
API Well Number: 47-3901765
Permit Type: Plugging
Date Issued: 05/27/2016

Promoting a healthy environment.

3901765P

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.

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

1) Date: 4/28/2016
2) Operator's Well No. 809083 P&A
3) API Well No. 47-039-01765

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 1,493' Watershed Five Mile Fork of Morris Fork of Blue Creek
District Elk County Kanawha Quadrangle Mammoth, 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 Terry Urban
Address P.O. Box 1207
Clendenin, WV 25045

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

Site is location on Kelly's Creek through Spartan Mine Gate to Top of Hill

SEE Changes to prog

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

Work Order approved by Inspector Terry Urban Date 5-2-16

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API Number: **47-039-01765**

Operator's Well Number: **809083**

PLUGGING PROCEDURE

1) Prepare road and location, MIRU service rig

2) Run in hole with tools to check TD at approximately 2020'

3) Attempt to pull 3" and packer

A) If successful

a) Run W.S. to TD (approximately 2020'), spot gel
b) Spot 150' cement plug 2020'-1870', pull W.S.
c) Proceed to step 4

B) If unsuccessful

a) Run W.S. as deep as possible (approximately 2020') spot gel
b) Spot 45' cement plug 2020'-1985', pull W.S.
c) Cut 3" at free-point (approximately 1955') and pull
d) Rip or shoot holes in 7" at approximately 1925'
e) Run W.S. to 1955', spot gel
f) Spot 100' cement plug 1955'-1855', pull W.S.
g) Proceed to step 4

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4) Shoot or rip holes in 7" at approximately 1550' and 1520'

5) Run W.S. to 1550', spot gel

6) Spot 100' cement plug 1550'-1450', pull W.S. – Elevation

7) Cut 7" at free-point (approximately 1300') and pull

8) Run W.S. to 1300', spot gel

9) Spot 100' cement plug ~~1300~~ 1350'-1200', pull W.S. to 1050'

10) Spot 100' cement plug 1050'-950', pull W.S. to 800'

11) Spot 200' cement plug 800'-600', pull W.S.

Spot as on plug

12) Find free-point in 8 5/8" casing and pull from where free.

*If at least 490' of 8 5/8" cannot be pulled, then rip holes so the following plugs can be set.

13) Run W.S. to 490' and spot gel

14) Spot 100' cement plug 490'-390', pull W.s. to 320' COAL

15) Spot 120' cement plug 320'-200, pull W.S. to 100' COAL

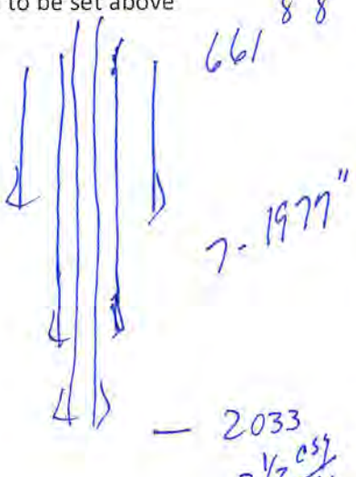
*NOTE: There is an open mine at 281'-287' so a brush bridge may need to be set above the mine in order to cement above the mine.

16) Spot 100' cement plug 100'-surface

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

20) Set monument and reclaim as prescribed by law.

Agent 5-2-16



OK gww

Form OG-10

Well 809083
API 47-039-01765 P

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION

WELL RECORD

Quadrangle Clendenin
Permit No. KAN-1765
Oil or Gas Well Gas (KIND)

Company United Fuel Gas Company
Address P.O. Box 1273; Charleston 25, W. Va.
Farm Sallie J. Dickinson Acres 1350
Location (waters) 5 Mile Fork
Well No. 9083 Elev. 1489.83
District Elk County Kanawha
The surface of tract is owned in fee by
Address
Mineral rights are owned by Kanawha Valley Bank
Cr.Sally Dickinson Chase Address Charleston, W.Va.
Drilling commenced 6-7-61
Drilling completed 7-6-61
Date Shot From To
With
Open Flow 30 /10ths Water in Inch
/10ths Merc. in 3 Inch
Volume 1,917,000 - Maxon Cu. Ft.
Rock Pressure 505 lbs. 48 hrs.
Oil bbls., 1st 24 hrs.
WELL ACIDIZED

WELL FRACTURED

RESULT AFTER TREATMENT
ROCK PRESSURE AFTER TREATMENT
Fresh Water 790 Feet 1050 Salt Water Feet

Casing and Tubing	Used in Drilling	Left in Well	Packers
Size			
16			Kind of Packer
13			Anchor
10 3/4		32'	Size of
8¼ 5/8		661	3½" x 7"
7 6⅝		1977	Depth set
5 3/16			1985'
3 ½		2033	Perf. top
2			Perf. bottom
Liners Used			Perf. top
			Perf. bottom

CASING CEMENTED SIZE No. Ft. Date

COAL WAS ENCOUNTERED AT 247 FEET 72 INCHES
452 FEET 48 INCHES FEET INCHES
FEET INCHES FEET INCHES

Formation	Color	Hard or Soft	Top	Bottom	Oil, Gas or Water	Depth	Remarks
Surface			0	20	Water 790' 1 bbl. per hour		
Slate			20	90			
Sand			90	120	Hole full water 1050'		
Slate & Shells			120	247			
Coal			247	253	Gas 2000' 4/10 W 1" 21 M		
Broken Sand			253	281	Gas 2005' 21/10 W 2" 189 M		
Mine Shaft			281	287	Gas 2012' 90/10 W 3" 900 M		
Slate & Shells			287	305	Gas 2018' 10/10 Merc. 3" 1,107 M		
Sand			305	415	Gas 2025' 30/10 Merc. 3" 1,917 M		
Lime			415	438			
Slate & Shells			438	452	No treatment		
Coal			452	456			
Slate & Shells			456	1300	Final open flow when shut in 30/10 Merc.		
Salt Sand			1300	1475	3" 1,917 M		
Slate			1475	1480			
Sand			1480	1650			
Slate			1650	1687			
Sand			1687	1815	Shut in 7-6-61 in 3½" tubing.		
Slate			1815	1825			
Sand			1825	1898			
Red Rock			1898	1905			
Slate			1905	1930			
Red Rock			1930	1950			
Slate			1950	1970			
Maxon			1970	2028			
Total Depth			2028'				

Coal — Water — Elevation =

Gas

OIL 1961
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Dept. of Mines

(over)

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661 8/8
7 1977
3½ 2033

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WW4-A
Revised
2/01

1) Date: 4/28/2016
2) Operator's Well No. 809083 P&A
3) API Well No. 47-039-01765

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 H. C. Dickinson, LLC
Address C/O Margaret C. Hager
P.O. Box 14744
Richmond, VA 23221

(b) Name
Address

(c) Name
Address

5) Coal Operator
(a) Name Spartan Mining Company
Address DBA Mammoth Coal Company
P.O. Box 150
Cannelton, WV 25036

Coal Owner(s) with Declaration
(b) Name H. C. Dickinson, LLC
Address C/O Margaret C. Hager
P.O. Box 14744
Richmond, VA 23221

Name
Address

Coal Lessee with Declaration
(c) Name Kanawha Energy company
Address P.O. Box 11174
Charleston, WV 25311

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

Telephone 304-549-5915

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 this 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.

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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

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 28th day of April the year of 2016

Phyllis A. Copley
Notary Public

My Commission Expires September 16, 2018

Form WW-9

3901765 P

Rev. 02/01

API Number 47-039-01765
Operator's Well No. 809083 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 Five Mile Fork of Morris Fork of Blue Creek Quadrangle Mammoth, WV 7.5'

Elevation 1,493' County Kanawha District Elk

Description of anticipated Pit Waste: Plugging Returns/Cement

Will a synthetic liner be used in the pit? Yes 14/5.2-16

Proposed Disposal Method For Treated Pit Wastes:

~~X~~ Land Application — No 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 one of their tank batteries. JPW

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) David Gocke

Company Official Title Manager - Operations, Appalachia South

Subscribed and sworn before me this 28th day of April, 2016.

Phyllis A. Copley Notary Public.

My Commission Expires September 16, 2018

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

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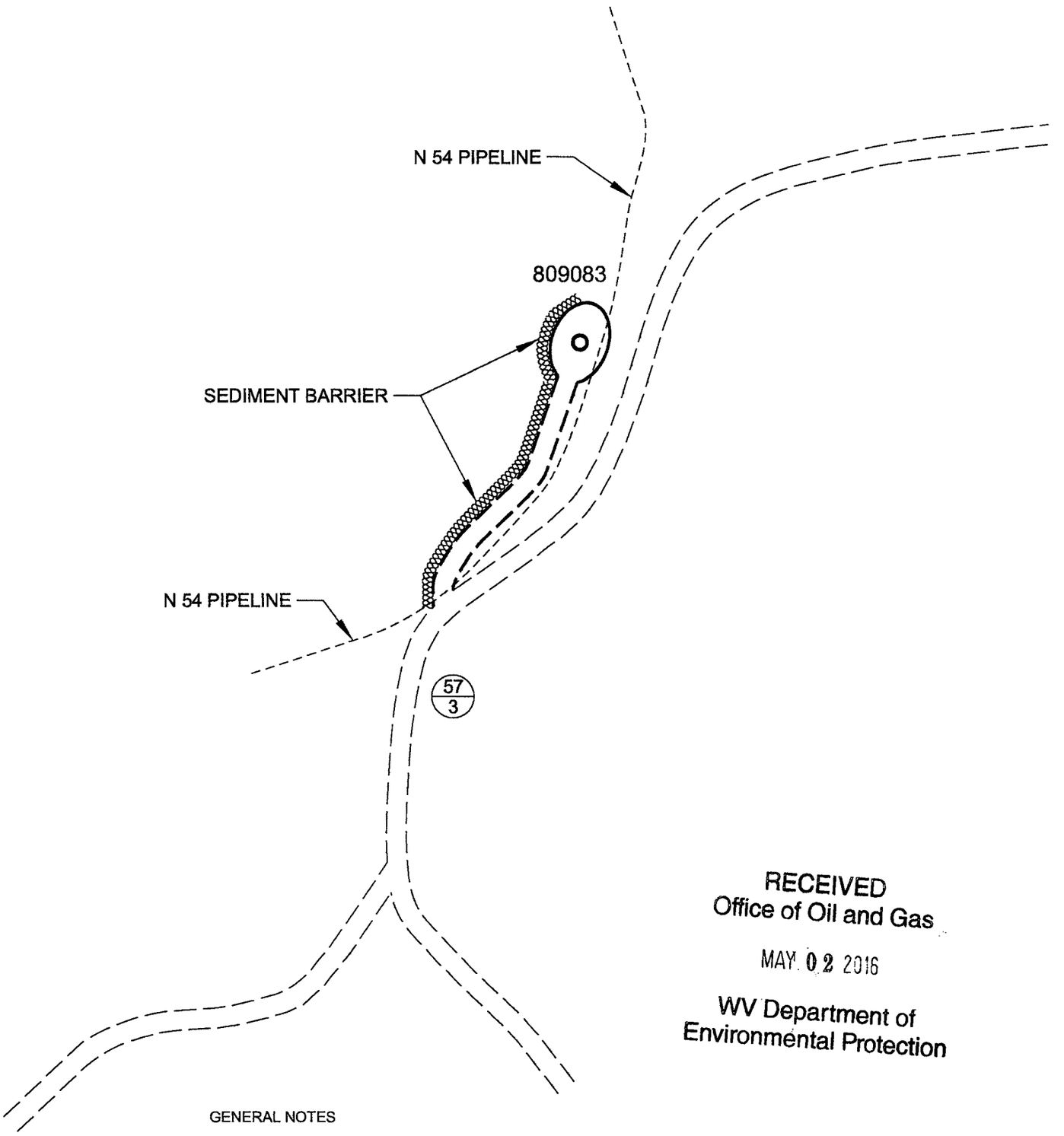
CHESAPEAKE APPALACHIA, L.L.C.

RECLAMATION DIAGRAM
WELL LOCATION 809083

API 47-039-01765



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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.

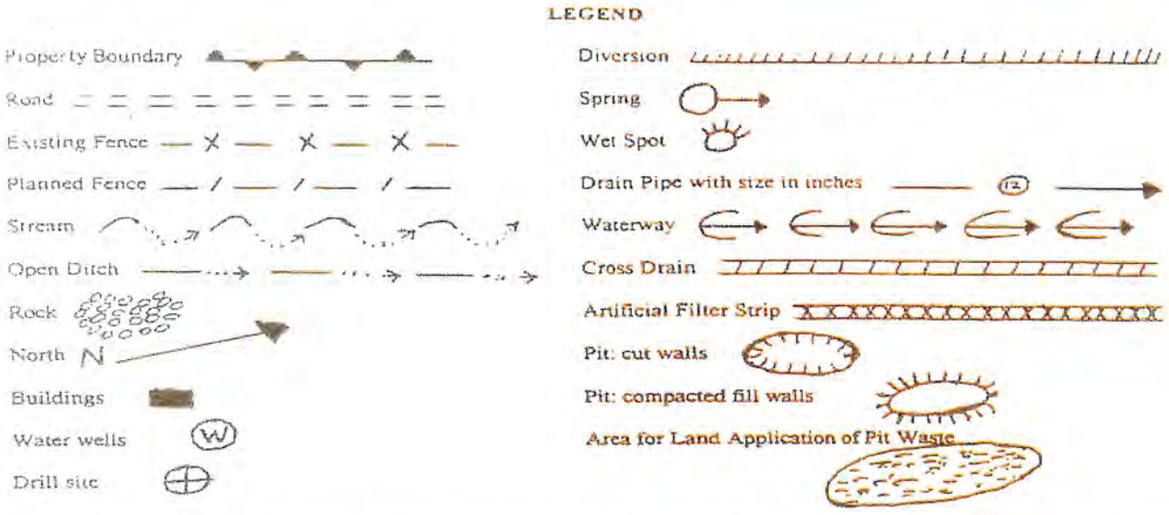
Permanent seeding: See Attachment #1.

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

3901765P

Attachment #1

API #: 47-039-01765
Operator's Well No. 809083 P&A



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		**May 1st to September 30th**	
Creeping Red Fescue	68.60%	Creeping Red Fescue	68.60%
Wheat	14.76%	Wheat	17.18%
Annual Ryegrass	9.80%	Annual Ryegrass	9.80%
Ladino Clover	3.21%	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: Harry W Ulla Kelly's Creek - Through

Title: Field Inspector Oil & Gas Sparta Mine to Top of Hill

Date: 5-2-16

Field Reviewed? (✓) Yes ( ) No

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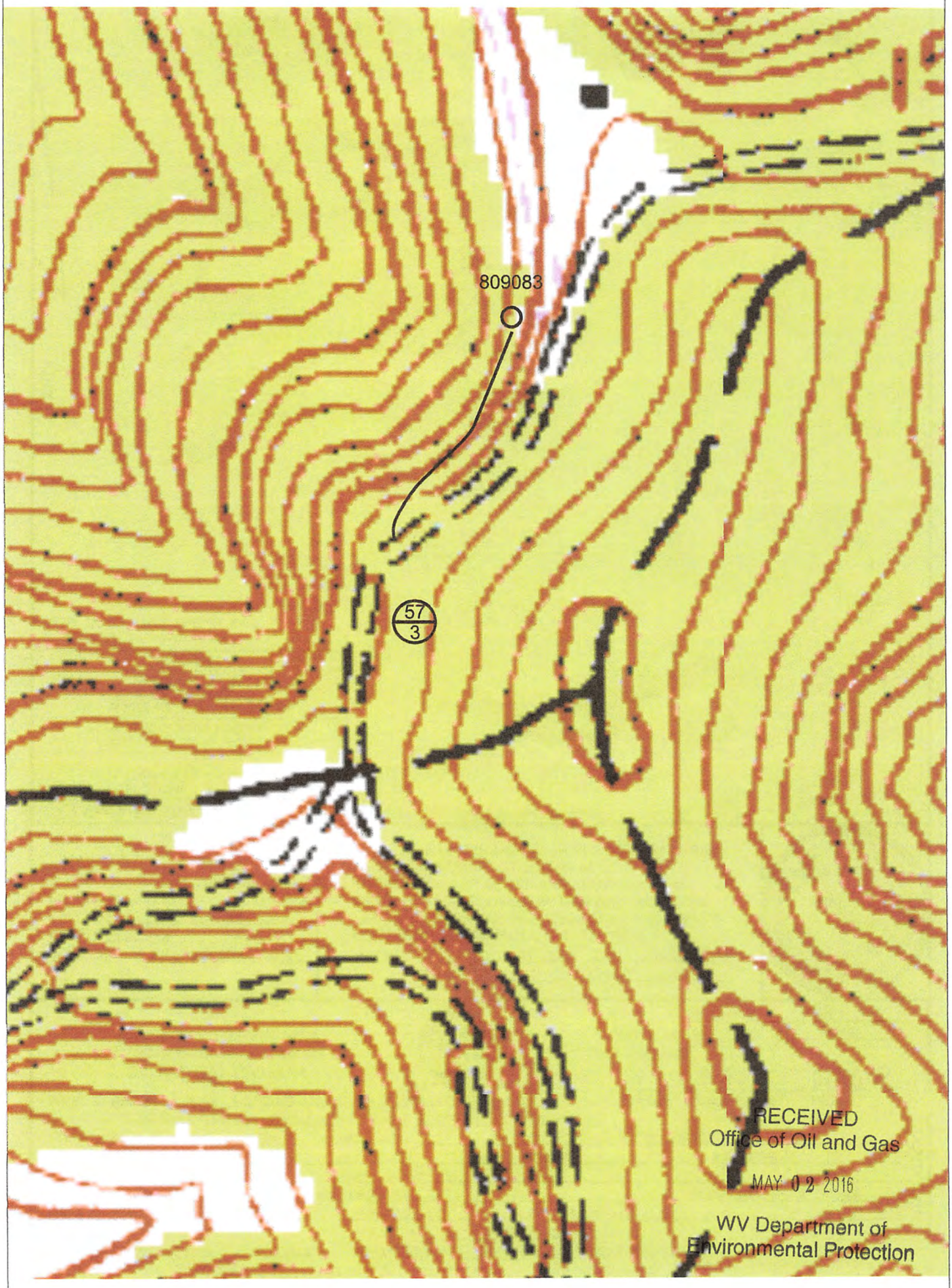
CHESAPEAKE APPALACHIA, L.L.C.

TOPOGRAPHICAL MAP OF ACCESS AND WELL LOCATION 809083

API 47-039-01765



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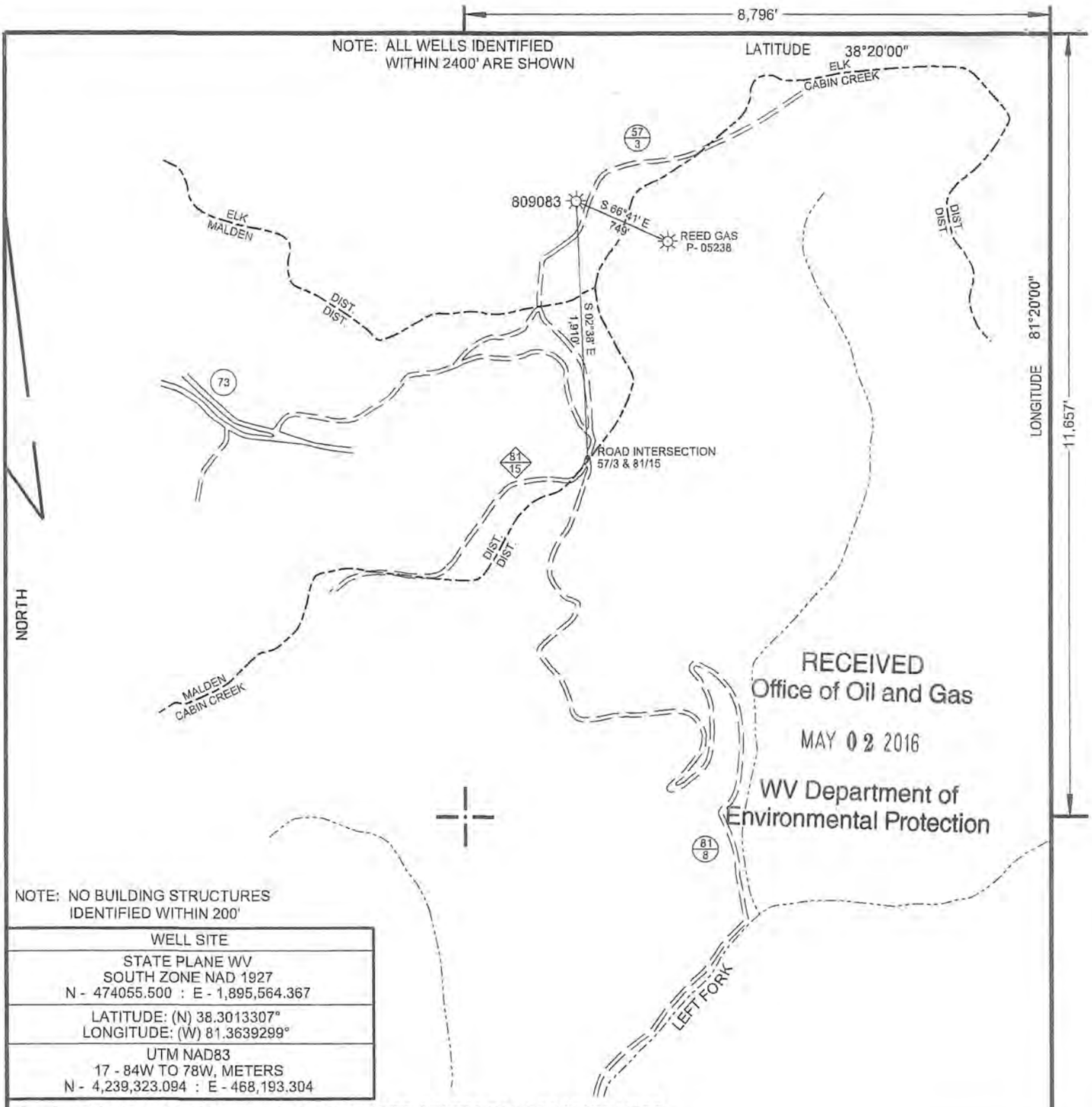
CHESAPEAKE ENERGY CORPORATION - EASTERN DIVISION
P.O. BOX 579 - 8165 COURT AVENUE - HAMLIN, WV 25523
304 824-5141 - FAX 304 824-2247



NOTE: NO BUILDING STRUCTURES IDENTIFIED WITHIN 200'

WELL SITE
STATE PLANE WV SOUTH ZONE NAD 1927 N - 474055.500 : E - 1,895,564.367
LATITUDE: (N) 38.3013307° LONGITUDE: (W) 81.3639299°
UTM NAD83 17 - 84W TO 78W, METERS N - 4,239,323.094 : E - 468,193.304

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

FILE NO. 809083 P&A.DGN
DRAWING NO. 809083 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

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

DATE MARCH 16, 20 16
OPERATOR'S WELL NO. 809083
API WELL NO.
47 (STATE) 039 (COUNTY) 01765 P (PERMIT)

WELL TYPE: OIL ___ GAS X LIQUID INJECTION ___ WASTE DISPOSAL ___
(IF "GAS,") PRODUCTION X STORAGE ___ DEEP ___ SHALLOW X
LOCATION: ELEVATION 1,493' WATER SHED FIVE MILE FORK OF MORRIS FORK OF BLUE CREEK
DISTRICT ELK COUNTY KANAWHA
QUADRANGLE MAMMOTH, WV 7.5'
SURFACE OWNER H. C. DICKINSON, LLC ACREAGE 268.93
OIL & GAS ROYALTY OWNER H. C. DICKINSON, LLC LEASE ACREAGE 268.93
LEASE NO. 1-025631-000
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 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