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**west virginia** department of environmental protection

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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

February 22, 2016

**WELL WORK PLUGGING PERMIT**

**Plugging**

This permit, API Well Number: 47-4301487, issued to HG ENERGY, LLC, 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: E. T. SPURLOCK 8  
Farm Name: BROYLES, SANDRA ROGERS  
**API Well Number: 47-4301487**  
**Permit Type: Plugging**  
Date Issued: 02/22/2016

**Promoting a healthy environment.**

**02/26/2016**

## 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

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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.

WW-4B  
Rev. 2/01

1) Date January 21, 2016  
2) Operator's  
Well No. ET Spurlock 8  
3) API Well No. 47-043 - 1487

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  / Liquid injection  / Waste disposal  /  
(If "Gas, Production  or Underground storage  ) Deep  / Shallow

5) Location: Elevation 903' Watershed Hayzlett Fork  
District Duval County Lincoln Quadrangle Garrett's Bend 7.5'

6) Well Operator HG Energy, LLC 7) Designated Agent Diane White  
Address 5260 Dupont Road Address 5260 Dupont Road  
Parkersburg, WV 26101 Parkersburg, WV 26101

8) Oil and Gas Inspector to be notified Name Jeremy James  
Address P. O. Box 36  
Clendenin, WV 25045  
9) Plugging Contractor Name To Be Determined Upon Approval of Permit  
Address \_\_\_\_\_

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

**\*\* See Attached Sheet \*\***

RECEIVED

Office of Oil and Gas

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

FEB 05 2016

Work order approved by inspector



WV Department of  
Date 1/27/16  
Environmental Protection

02/26/2016

- 1) Date: January 21, 2016
- 2) Operator's Well Number  
E T Spurlock 8
- 3) API Well No: 47 - 043 - 1487  
State County Permit

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  Liquid Injection \_\_\_\_\_ Waste Disposal \_\_\_\_\_  
(If "Gas", Production \_\_\_\_\_ Underground Storage \_\_\_\_\_ ) Deep \_\_\_\_\_ Shallow
- 5) LOCATION: Elevation: 903' Watershed: Hayzlett Fork  
District: Duval County: Lincoln Quadrangle Garretts Bend 7.5'
- 6) WELL OPERATOR: HG Energy, LLC 494497948 7) DESIGNATED AGENT Diane White  
Address 5260 Dupont Road Address 5260 Dupont Road  
Parkersburg, WV 26101 Parkersburg, WV 26101
- 8) OIL & GAS INSPECTOR TO BE NOTIFIED 9) PLUGGING CONTRACTOR  
Name Jeremy James Name To Be Determined Upon Approval of Permit  
Address P. O. Box 36 Address \_\_\_\_\_  
Clendenin, WV 25045 Address \_\_\_\_\_

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

TD- 2,452'

Manners of plugging;

- Plug #1 - ~~2200'~~ - ~~2100'~~ 2400-2300 tag plug + reset if below 2300
- Located above the highest perforation
- Free point, part and pull 4 1/2" casing at approx 1800'
- Plug # 2 - Approx. 1850' - 1750'
- Located at 4 1/2" casing stub
- Plug #3 - 950' - 850'
- Located at elevation
- Plug #4 - 330' - 230'
- Located at 8 5/8" casing shoe/fresh water
- Plug #5 - 100-0
- Surface

Recover all possible casing. If casing can not be recovered, perforate for plug placement.

Monument -

- 6" minimum diameter metal pipe
- 30" above surface
- 10' in well below surface
- Sealed with cement
- API identification (1/2") height numbering

6% Gel between all plugs

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Office of Oil and Gas

FEB 05 2016

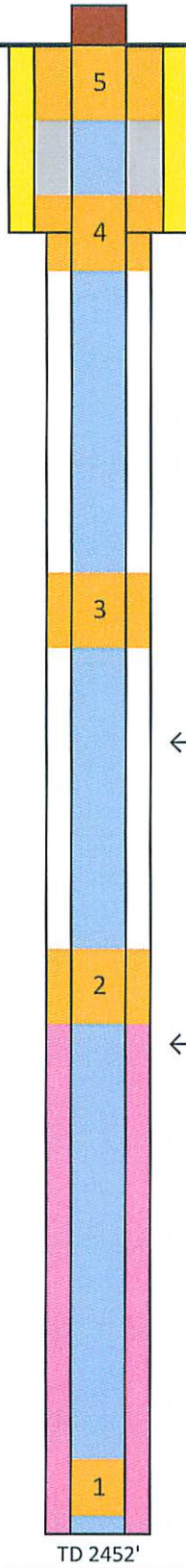
WV Department of  
Environmental Protection  
02/26/2016

Well: E.T. Spurlock 8

Monument to extend 30" above surface. 10' into well. 6" min metal pipe, sealed with cement. API i.D.

Elevation: 902'

Casing Information		
Size	Depth	Weight
8 5/8"	276'	9.5#/ft.
4 1/2"	2439'	20#/ft.



175 sacks cement to surface

Freepoint Cut and Pull Casing	
Size	Approx. Depth
4 1/2"	1800

Cement Plugs		
NO.	Bottom	Top
1	<del>-2200</del> 2400'	<del>-2100</del> 2300'
2	1850	1750
3	950	850
4	330	230
5	100	0

6.75" Hole Size

Bottom Hole Cement Level Calculations

# Sacks Used                      Cement Depth  
50                                      2132.079

Hole Size                      Casing Size                      Depth  
6.75                                      4.5                                      2439

diameter delta                      Conv. Factor                      bbls / ft.  
25.3125                                      1029.4                                      0.02459

cubic ft. per vertical ft. depth  
0.138058122

Sacks per vertical ft. depth  
0.162908584

Yield options

50/50 posmix 6% gel = 1.64  
Neat w/ salt flakes = 1.19  
50/50 w/ 2% gel = 1.27

50 Sks Cement T.O.C. 2132'

Highest Perforation 2399'

TD 2452'

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Office of Oil and Gas  
FEB 05 2016  
WV Department of  
Environmental Protection  
02/26/2016

75% DeArman - 25 % Pz1.

Lease: E. T. SPURLOCK Well No. 8 New Well X Old Well     

District: Duval County: Lincoln State: West Virginia

Pool Name: Griffithsville Northeast Pool No. 57 Elevation 909.51' KB: OK

Producing Formation: Berea Depth: From      to     

Date Drilled In: December 5, 1973 Pays: Oil: From      to     

Original Total Depth: 2452' From      to     

Plug Back Depth:      Gas: From      to     

Production Initial Present After Fracture

Oil               

Gas               

Surface Csg. set @ 278' <sup>8-5/8"</sup> KB: GL Gr. H-40 New:Used      Wt. 20# Collars ST&C

Cement Reg. Neat Amount 150 Sacks Plug Down @ 8:00 AM:PM Date 12/1/73

Production Csg. set @ 2441' <sup>4-1/2"</sup> KB: GL Gr. K-55 New:Used      Wt. 9.50# Collars ST&C

Cement 50/50 Posmix Amount 50 Sacks Plug Down @ 9:45 AM:PM Date 12/5/73

Logged by: Basin Surveys Date: December 5, 1973

Logs Used: Gamma Ray-Density-Caliper

Perforated by: Basin Surveys Date: December 11, 1973

Perforations: 2399'-2404' - 4 holes/ft. - 20 holes

Treatment Data

Type	Fluid	Sand	Acid	Solvent	Gel	Breaking Agent	Fluid Loss	F.R. Agent	N.E. Agent
Lease Crude		20/40	15% MCA						
Amount	547	25,000	250						

Breakdown Pressure: 1450 Treating Pressure: Max. 2700 Min. 2400 Avg. 2600

Avg. Inj. Rate 24.2 BPM ISIP 1600 @      AM:PM 5 min. SIP 1450

10 min. SIP 1300 15 min. SIP 1200 Other 2 hr. SIP 600#

EQUIPMENT USED

Service Company: Dowell HHP 1543

By: George P. SanFilippo Date Fractured: 12/11/73

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Office of Oil and Gas

FEB 05 2016

WV Department of  
Environmental Protection

02/26/2016

WW-4A  
Revised 6-07

1) Date: January 21, 2016  
2) Operator's Well Number  
E. T. Spurlock 8  
3) API Well No.: 47 - 043 - 1487

**STATE OF WEST VIRGINIA**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
**NOTICE OF APPLICATION TO PLUG AND ABANDON A WELL**

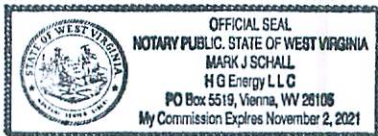
4) Surface Owner(s) to be served:	✓	5) (a) Coal Operator	
(a) Name	<u>Sarah R. Broyles</u>	Name	<u>NA</u>
Address	<u>1909 Garrett's Bend Road</u> <u>Sod, WV 25564</u>	Address	<u></u>
(b) Name	<u></u>	(b) Coal Owner(s) with Declaration	
Address	<u></u>	Name	<u>NA</u>
		Address	<u></u>
(c) Name	<u></u>	Name	<u></u>
Address	<u></u>	Address	<u></u>
6) Inspector	<u>Jeremy James</u>	(c) Coal Lessee with Declaration	
Address	<u>PO Box 36</u> <u>Clendenin, WV 25045</u>	Name	<u>NA</u>
Telephone	<u>304-951-2596</u>	Address	<u></u>

**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 this 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 HG Energy, LLC  
 By: Diane White  
 Its: Agent  
 Address 5260 Dupont Road  
Parkersburg, WV 26101  
 Telephone 304-420-1119

Subscribed and sworn before me this 21th day of January, 2016  
My Commission Expires NOVEMBER 2, 2021

RECEIVED  
Office of Oil and Gas  
Notary Public  
FEB 05 2016

Oil and Gas Privacy Notice

The Office of Oil and Gas processes your personal information, such as name, address and phone number, as a part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use of your personal information, please contact DEP's Chief Privacy Officer at [depprivacyoffier@wv.gov](mailto:depprivacyoffier@wv.gov).

WW-9  
(2/15)

API Number 47 - 043 - 1487  
Operator's Well No. E T Spurlock 8

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
OFFICE OF OIL AND GAS

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name HG Energy, LLC OP Code 494497948

Watershed (HUC 10) Hayzlett Fork Quadrangle Garrett's Bend 7.5'

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes  No

Will a pit be used? Yes  No

If so, please describe anticipated pit waste: Fluids encountered while plugging subject well

Will a synthetic liner be used in the pit? Yes  No  If so, what ml.? 30 mil

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 \_\_\_\_\_)

Will closed loop system be used? If so, describe: No

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. NA

-If oil based, what type? Synthetic, petroleum, etc. NA

Additives to be used in drilling medium? NA

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. NA

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) NA

-Landfill or offsite name/permit number? NA

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, 2005, 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 Diane White  
Company Official (Typed Name) Diane White  
Company Official Title Agent

Subscribed and sworn before me this 21st day of January, 2016

[Signature] Notary Public

My commission expires NOVEMBER 2, 2021





HG Energy, LLC

Proposed Revegetation Treatment: Acres Disturbed 1.2 acres Prevegetation pH \_\_\_\_\_

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20 or Equivalent

Fertilizer amount 500 lbs/acre

Mulch Straw 2 Tons/acre

Seed Mixtures

**Temporary**

**Permanent**

Seed Type	lbs/acre
Tall Fescue	40
Ladino Clover	5

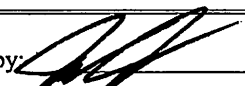
Seed Type	lbs/acre
Tall Fescue	40
Ladino Clover	5

**\*\* Sediment Control Should Be In Place At All Times \*\***

Attach:

Drawing(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided)

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: 

Comments: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Title: inspector OOG

Date: 1-27-16 RECEIVED

Field Reviewed? ( ) Yes ( ) No

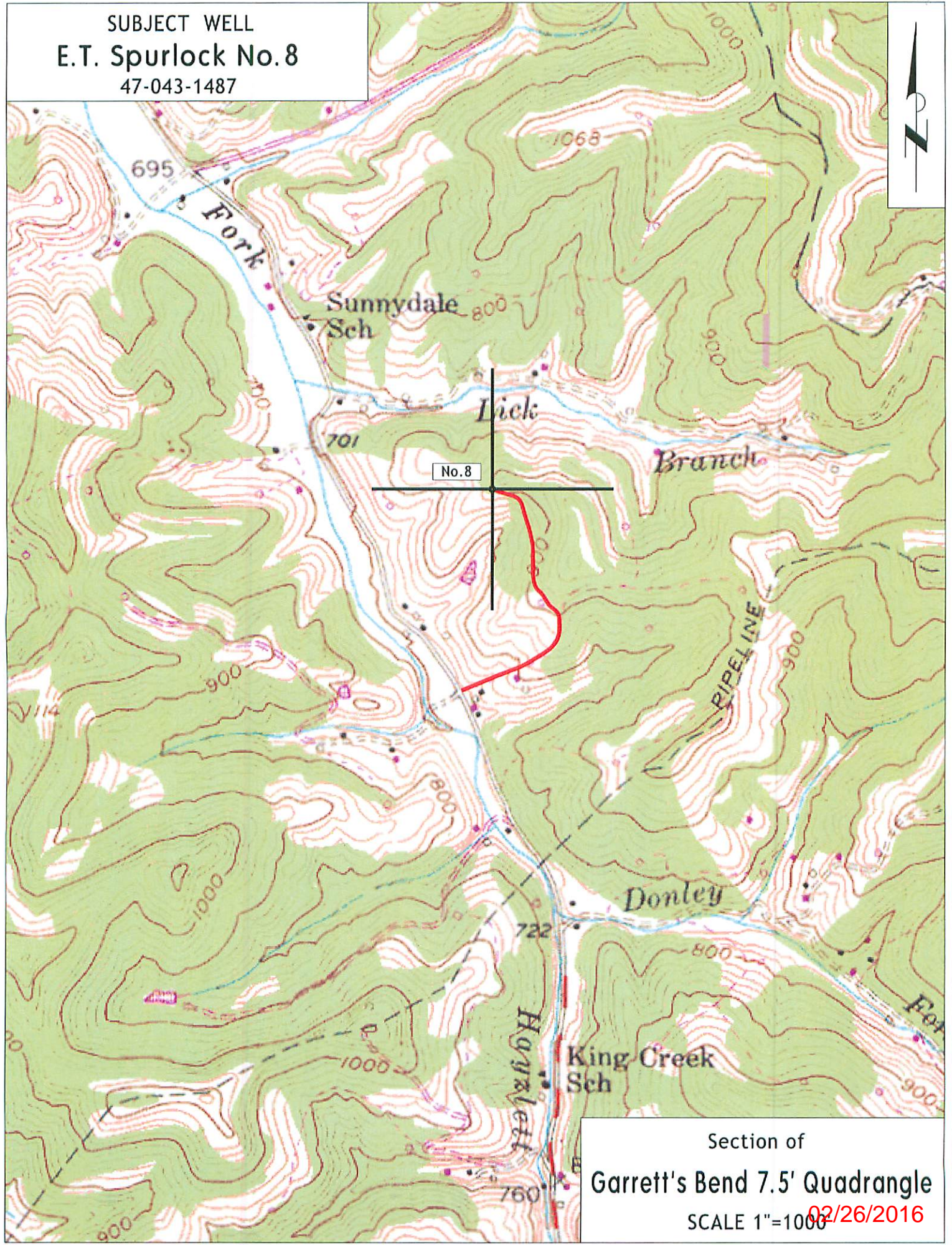
Office of Oil and Gas

FEB 05 2016

WV Department of Environmental Protection

02/26/2016

SUBJECT WELL  
E.T. Spurlock No. 8  
47-043-1487



Section of  
Garrett's Bend 7.5' Quadrangle  
SCALE 1"=1000  
02/26/2016

