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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 11, 2016

**WELL WORK PLUGGING PERMIT**

**Plugging**

This permit, API Well Number: 47-4301471, 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 4  
Farm Name: ADAMS, VERNON & MICHAEL  
**API Well Number: 47-4301471**  
**Permit Type: Plugging**  
Date Issued: 02/11/2016

## 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.

1) Date January 12, 2016  
2) Operator's  
Well No. ET Spurlock 4  
3) API Well No. 47-043 - 1471

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

5) Location: Elevation 831' 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

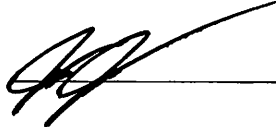
8) Oil and Gas Inspector to be notified 9) Plugging Contractor  
Name Jeremy James Name To Be Determined Upon Approval Of Permit  
Address P. O. Box 36 Address \_\_\_\_\_  
Clendenin, WV 25045

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  
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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 1-27-16

WW-4B - Conti  
Rev. 2/01

1) Date: January 12, 2016  
2) Operator's Well Number E T Spurlock 4  
3) API Well No: 47 - 043 - 1471  
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 x Gas x Liquid Injection \_\_\_\_\_ Waste Disposal \_\_\_\_\_  
(If "Gas", Production \_\_\_\_\_ Underground Storage \_\_\_\_\_ ) Deep \_\_\_\_\_ Shallow x  
5) LOCATION: Elevation: 831' Watershed: Hayzlett Fork  
District: Duval County: Lincoln Quadrangle Garretts Bend 7.5'  
6) WELL OPERATOR: HG Energy, LLC 4.94E+08 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 \_\_\_\_\_

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

TD- 2,413'

Manners of plugging:

Plug #1 - ~~2300'~~ - 2200' 2350 - 2250 Tag plug & reset if below 2250  
Located above the highest perforation  
Free point, part and pull 4 1/2" casing at approx 1800'  
Plug # 2 - Approx. ~~1850'~~ - 1750' - 1650  
Located at 4 1/2" casing stub  
Plug #3 - 900' - 800'  
Located at elevation  
Plug #4 - 250' - 0'  
Located at 8 5/8" casing shoe, fresh water, surface

*if unable to pull, set 100% cement plug across cut & cut again below 5' or lower*  
*[Signature]*  
Office of Oil and Gas  
FEB 04 2016  
WV Department of Environmental Protection

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

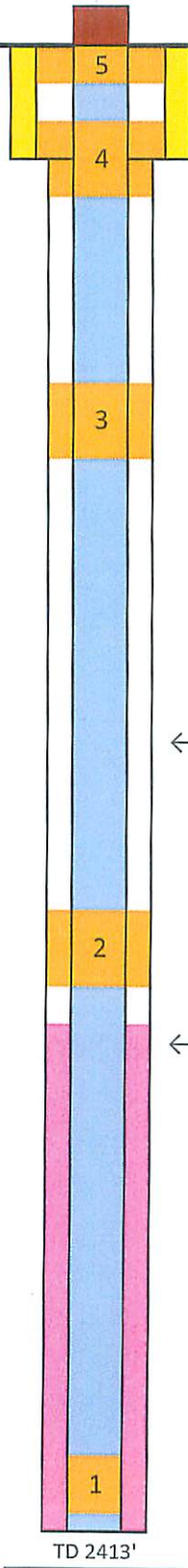
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Well: E.T. Spurlock #4

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

Elevation: 843'

Casing Information		
Size	Depth	Weight
8 5/8"	198'	20#/ft.
4 1/2"	2400'	10.5#/ft.



150 sacks cement to surface

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

Cement Plugs		
NO.	Bottom	Top
1	2300	2200
2	1850	1750
3	900	800
4	250	0

6 3/4" Hole Size

90 Sks Cement T.O.C. 2106'

Highest Perforation 2367'

Bottom Hole Cement Level Calculations

# Sacks Used                      Cement Depth  
 50                                      2106.079

Hole Size            Casing Size    Depth  
 6.75                      4.5                2413

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

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Lease: E. T. SPURLOCK Well No. 4 New Well X Old Well      REFRAC  
 District: Duval County: Lincoln State: West Virginia  
 Pool Name: Griffithsville Northeast Pool No. 57 Elevation 843.26' KB: KB  
 Producing Formation: Berea Depth: From      to       
 Date Drilled In: June 23, 1973 Pays: Oil: From      to       
 Original Total Depth: 2413' From      to       
 Plug Back Depth:      Gas: From      to       
 From      to     

Production	Initial	Present	After Fracture
Oil	<u>    </u>	<u>    </u>	<u>    </u>
Gas	<u>    </u>	<u>    </u>	<u>    </u>

Surface Csg. set @ 207' KB: GL Gr. H-40 New: Used Wt. 20# Collars       
 Cement Req. Neat Amount 150 Sacks Plug Down @ 6:30 AM: RM Date 6/19/73  
 4-1/2" 5 cent. & 8 strat.

Production Csg. set @ 2410.77 KB: GIX Gr. K-55 New: Used Wt. 9.5# Collars ST&C  
 Cement 50/50 Posmix Amount 50 Sacks Plug Down @ 4:45 AM: PM Date 6/23/73

Logged by: Basin Surveys Date: June 23, 1973

Logs Used: Gamma Ray-Density-Caliper

Perforated by: Basin Surveys Date: June 27, 1973

Perforations: 2367'-2377' - 2 holes/ft. - 20 holes

Treatment Data

Type	Fluid Lease	Sand	Acid	Solvent	Gel	Breaking Agent	Fluid Loss	F.R. Agent	N.E. Agent
	<u>Crude</u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>HY-F10</u>
Amount	<u>301</u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>    </u>	<u>15</u>

Breakdown Pressure: 800 Treating Pressure: Max. 2450 Min. 2050 Avg. 2300

Avg. Inj. Rate 11.3 BPM ISIP 1900 @      AM: PM 5 min. SIP 1400

10 min. SIP 1000 15 min. SIP 600 Other 30 min. on vac.

EQUIPMENT USED

Service Company: Halliburton HHP 654

By: George P. SanFilippo Date Fractured: 9/26/73

WW-4A  
Revised 6-07

1) Date: January 12, 2016  
2) Operator's Well Number  
E T Spurlock 4

3) API Well No.: 47 - 043 - 01471

**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>Vernon &amp; Kathy Adams</u> ✓	Name <u>NA</u>
Address <u>16 Brooks Road</u>	Address _____
<u>Sod, WV 25564</u>	_____
(b) Name _____	(b) Coal Owner(s) with Declaration
Address _____	Name <u>NA</u>
_____	Address _____
(c) Name _____	Name _____
Address _____	Address _____
_____	_____
6) Inspector <u>Jeremy James</u>	(c) Coal Lessee with Declaration
Address <u>P. O. Box 36</u>	Name <u>NA</u>
<u>Clendenin, WV 25045</u>	Address _____
Telephone <u>304-951-2596</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.

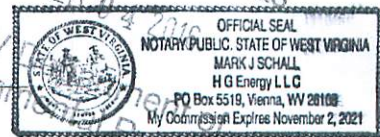
Take notice that under Chapter 22-6 of the West Virginia Code, the undersigned well operator proposes to file or has filed this Notice and Application and accompanying documents for a permit to plug and abandon a well with the Chief of the Office of Oil and Gas, West Virginia Department of Environmental 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 *Diane White*  
 Its: Agent  
 Address 5260 Dupont Road  
Parkersburg, WV 26101  
 Telephone 304-420-1119

Subscribed and sworn before me this 12th day of January

My Commission Expires NOVEMBER 2, 2021

Notary Public



**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).

02/12/2016



WW-9  
(5/13)

Page \_\_\_\_\_ of \_\_\_\_\_  
API Number 47 - 043 - 01471  
Operator's Well No. ET Spurlock 4

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name \_\_\_\_\_ OP Code 494497948

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

Elevation 831' County Lincoln District Duval

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

Will a pit be used for drill cuttings? Yes x No \_\_\_\_\_

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

Will a synthetic liner be used in the pit? Yes x 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? No

Drilling medium anticipated for this well? 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

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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

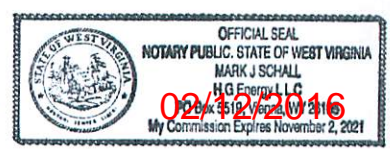
Company Official Title Agent

Subscribed and sworn before me this 12th day of January, 2016

*[Signature]*

Notary Public

My commission expires NOVEMBER 2, 2021





Form WW-9

Operator's Well No. E T Spurlock 4

Proposed Revegetation Treatment: Acres Disturbed 0.9 acres Prevegetation pH \_\_\_\_\_

Lime 2 Tons/acre or to correct to pH 6.5

Fertilizer (10-20-20 or equivalent) 500 lbs/acre (500 lbs minimum)

Mulch Straw 2 Tons/acre

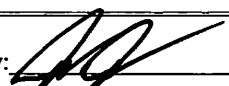
Seed Mixtures

Area I		Area II	
Seed Type	lbs/acre	Seed Type	lbs/acre
Tall Fescue	40	Tall Fescue	40
Ladino Clover	5	Ladino Clover	5

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

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: 

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

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FEB 04 2016

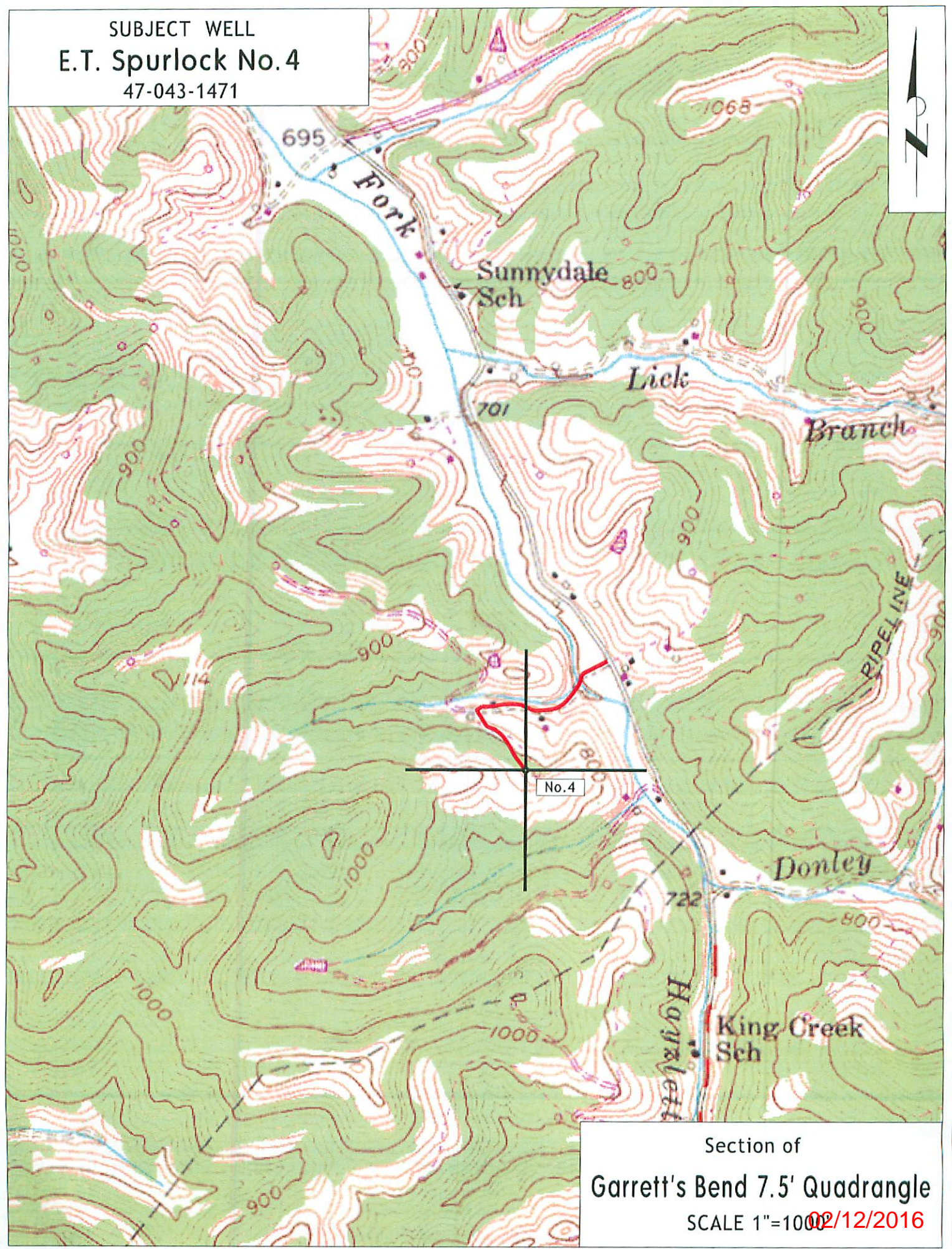
WV Department of  
Environmental Protection

Title: inspector OOG Date: 1-27-16

Field Reviewed? ( ) Yes ( ) No



SUBJECT WELL  
E.T. Spurlock No. 4  
47-043-1471



Section of  
Garrett's Bend 7.5' Quadrangle  
SCALE 1"=1000' 02/12/2016



WW-7  
5-02

West Virginia Department of Environmental Protection  
Office of Oil & Gas  
**WELL LOCATION FORM: GPS**

API: 47- 043 - 1471 WELL NO: 4

FARM NAME: E.T. Spurlock No.4

RESPONSIBLE PARTY NAME: H.G. Energy, LLC

COUNTY: Lincoln DISTRICT: Duval

QUADRANGLE: Garrett's Bend 7.5'

SURFACE OWNER: Vernon & Kathy Adams

ROYALTY OWNER: H.G. Energy, LLC et al.

UTM GPS NORTHING: 4,237,418 (NAD 83)

UTM GPS EASTING: 421,764 (NAD 83) GPS ELEVATION: 253 m. (830')

The Responsible Party named above has chosen to submit GPS coordinates in lieu of preparing a new well location plat for a plugging permit on the above well. The Office of Oil & Gas will not accept GPS coordinates that do not meet the following requirements:

1. Datum: NAD 1983, Zone:17 North, Coordinate Units: meters, Altitude: height above mean sea level (MSL) - meters.
2. Accuracy to Datum - 3.05 meters
3. Data Collection Method:

Survey Grade GPS  Post Processed Differential   
 Real-Time Differential   
 Mapping Grade GPS  Post Processed Differential   
 Real-Time Differential

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Office of Oil and Gas

FEB 10 2016

WV Department of  
Environmental Protection

I the undersigned, hereby certify this data 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 Office of Oil and Gas.

Diane White Diane C. White  
Signature

Designated Agent  
Title

November 24, 2015  
Date