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

February 22, 2016

WELL WORK PLUGGING PERMIT

Plugging

This permit, API Well Number: 47-4302587, 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 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: A. HUGHES 3
Farm Name: HUGHES, JOEL - HEIRS
API Well Number: 47-4302587
Permit Type: Plugging
Date Issued: 02/22/2016

4302587P

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.

4302587P

WW-4B
Rev. 2/01

1) Date January 21, 2016
2) Operator's
Well No. Love Hughes Heirs 3
3) API Well No. 47- 043 - 2587

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 1144' Watershed Donley Fork
District Duval County Lincoln Quadrangle Alum Creek 7.5'

6) Well Operator HG Energy, LLC
Address 5260 Dupont Road
Parkersburg, WV 26101

7) Designated Agent Diane White
Address 5260 Dupont Road
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 **

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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 1-26-16

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WW-4B - Conti
Rev. 2/01

1) Date: January 21, 2016
2) Operator's Well Number
Love Hughes Heirs 3
3) API Well No: 47 - 043 - 2587
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: 1144' Watershed: Donley Fork
District: Duval County: Lincoln Quadrangle Alum Creek 7.5'

6) WELL OPERATOR: HG Energy, LLC 494497948
Address 5260 Dupont Road
Parkersburg, WV 26101

7) DESIGNATED AGENT Diane White
Address 5260 Dupont Road
Parkersburg, WV 26101

8) OIL & 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:

TD- 2,775'

Manners of plugging:
Plug #1 - ~~2300' - 2200'~~ ~~2500~~ 2600-2500 tag plug reset if below 2500
Located above the highest perforation
Free point, part and pull 4 1/2" casing at approx 1850'
Plug # 2 - Approx. 1900' - 1800'
Located at 4 1/2" casing stub
Plug #3 - 1200' - 1100'
Located at elevation
Plug #4 - 600' - 500'
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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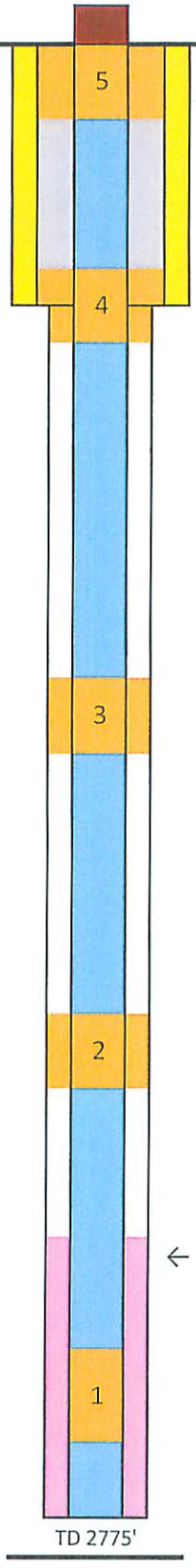
Well: A. Hughes #3

Elevation: 1157'

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

Casing Information		
Size	Depth	Weight
8 5/8"	550'	20#/ft.
4 1/2"	2775'	10.5#/ft.



← cement to surface

Freepoint Cut and Pull Casing	
Size	Approx. Depth
4 1/2	1850

Hole Size 6.75" →

Cement Plugs		
NO.	Bottom	Top
1	2600'	2200'
2	1900	1800
3	1200	1100
4	600	500
5	100	0

← Top of Cement 2000'

Bottom Hole Cement Level Calculations

# Sacks Used	Cement Depth
125	2007.699

Hole Size	Casing Size	Depth
6.75	4.5	2775

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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IV-35
(Rev 8-81)

State of West Virginia
Department of Mines
Oil and Gas Division

Date January 9, 1984
Operator's
Well No. A.J. Hughes #3
Farm Love Hughes Heirs
API No. 47 — 043 — 2587

WELL OPERATOR'S REPORT
OF
DRILLING, FRACTURING AND/OR STIMULATING, OR PHYSICAL CHANGE

WELL TYPE: Oil X / Gas X / Liquid Injection ___ / Waste Disposal ___ /
(If "Gas," Production X / Underground Storage ___ / Deep ___ / Shallow X /)

LOCATION: Elevation: 1157.20 Watershed Donley Fork
District: Duval County Lincoln Quadrangle Alum Creek

COMPANY Clint Hurt & Associates, Inc.
ADDRESS P.O. Box 388, Elkview, WV 25071
DESIGNATED AGENT I. David Bartram
ADDRESS SAME
SURFACE OWNER Love Hughes Heirs
ADDRESS Sod, WV
MINERAL RIGHTS OWNER Betty Vickers, et al.
ADDRESS 2601 27th Ave., Pkbg., WV 26101
OIL AND GAS INSPECTOR FOR THIS WORK Arthur St. Clair ADDRESS Brenton, WV 24818
PERMIT ISSUED June 16, 1983
DRILLING COMMENCED Jan. 1, 1984
DRILLING COMPLETED Jan. 6, 1984
IF APPLICABLE: PLUGGING OF DRY HOLE ON CONTINUOUS PROGRESSION FROM DRILLING OR REWORKING. VERBAL PERMISSION OBTAINED ON

Casing & Tubing	Used in Drilling	Left in Well	Cement fill up Cu. ft.
Size 20-16 Cond.			
13-10"			
9 5/8			
8 5/8	550	550	To surface
7			
5 1/2			
4 1/2		2775'	TO 2000'
3			
2			
Liners used			

GEOLOGICAL TARGET FORMATION Berea Depth 2637 feet
Depth of completed well 2775 feet Rotary X / Cable Tools ___
Water strata depth: Fresh 500 feet; Salt ___ feet
Coal seam depths: ___ Is coal being mined in the area? ___

OPEN FLOW DATA
Producing formation Berea Pay zone depth 2637-2659 feet
Gas: Initial open flow 0 Mcf/d Oil: Initial open flow 0 Bbl/d
Final open flow 60 Mcf/d Final open flow 14 Bbl/d
Time of open flow between initial and final tests ___ hours
Static rock pressure 375 psig (surface measurement) after 36 hours shut in
(If applicable due to multiple completion--)
Second producing formation ___ Pay zone depth ___ feet
Gas: Initial open flow ___ Mcf/d Oil: Initial open flow ___ Bbl/d
Final open flow ___ Mcf/d Oil: Final open flow ___ Bbl/d
Time of open flow between initial and final tests ___ hours
Static rock pressure ___ psig (surface measurement) after ___ hours shut in

(Continue on reverse side)

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FORM IV-35
(REVERSE)

DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC.

Perforated 2642' - 2654' 16 holes; treated 216 BBL Fluid, 60,000# 2450 Sand

WELL LOG

FORMATION COLOR HARD OR SOFT	TOP FEET	BOTTOM FEET	REMARKS Including indication of all fresh and salt water, coal, oil and gas
Sand & Shale	0	1320	
Salt Sand	1320	1945	
Little Lime	1945	1972	
Pencil Cave	1972	1978	
Big Lime	1978	2180	
Injun	2180	2210	
Shale	2210	2637	
Berea	2637	2659	
Shale	2659	2775	

(Attach separate sheets as necessary)

Clint Hurt & Associates, Inc.
Well Operator

By: J David Bantnam

Date: Feb. 1, 1984

Note: Regulation 2.02(i) provides as follows:
"The term 'log' or 'well log' shall mean a systematic detailed geological record of all formations, including

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WW-4A
Revised 6-07

1) Date: January 21, 2016
2) Operator's Well Number
Love Hughes Heirs 3

3) API Well No.: 47 - 043 - 2587

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE 0F APPLICATION TO PLUG AND ABANDON A WELL

4) Surface Owner(s) to be served:
(a) Name: Danny Hughes
Address: 633 Joe's Creek Road
Sod, WV 25564
(b) Name:
Address:
(c) Name:
Address:

6) Inspector: Jeremy James
Address: PO Box 36
Clendenin, WV 25045
Telephone: 304-951-2596

5) (a) Coal Operator
Name: NA
Address:
(b) Coal Owner(s) with Declaration
Name: NA
Address:
Name:
Address:
(c) Coal Lessee with Declaration
Name: NA
Address:

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.

OFFICIAL SEAL
NOTARY PUBLIC, STATE OF WEST VIRGINIA
MARK J SCHALL
H G Energy L L C
PO Box 5519, Vienna, WV 26105
My Commission Expires November 2, 2021

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 21th day of January, 2016
Notary Public
My Commission Expires NOVEMBER 2, 2021

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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.

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WW-9
(2/15)

API Number 47 - 043 - 2587
Operator's Well No. Love Hughes Heirs 3

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) Donley Fork Quadrangle Alum Creek 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

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Environmental Protection

Subscribed and sworn before me this 21st day of January, 2016, 20 16

Notary Public

My commission expires NOVEMBER 2, 2021

OFFICIAL SEAL
NOTARY PUBLIC, STATE OF WEST VIRGINIA
MARK J SCHALL
H G Energy L L C
PO Box 5519, Vienna, WV 26105
My Commission Expires November 2, 2021

4302587P

Form WW-9

Operator's Well No. Love Hughes Heirs 3

HG Energy, LLC

Proposed Revegetation Treatment: Acres Disturbed 1.3 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	Seed Type	lbs/acre
Tall Fescue	40	Tall Fescue	40
Ladino Clover	5	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 006 Date: 1-26-16

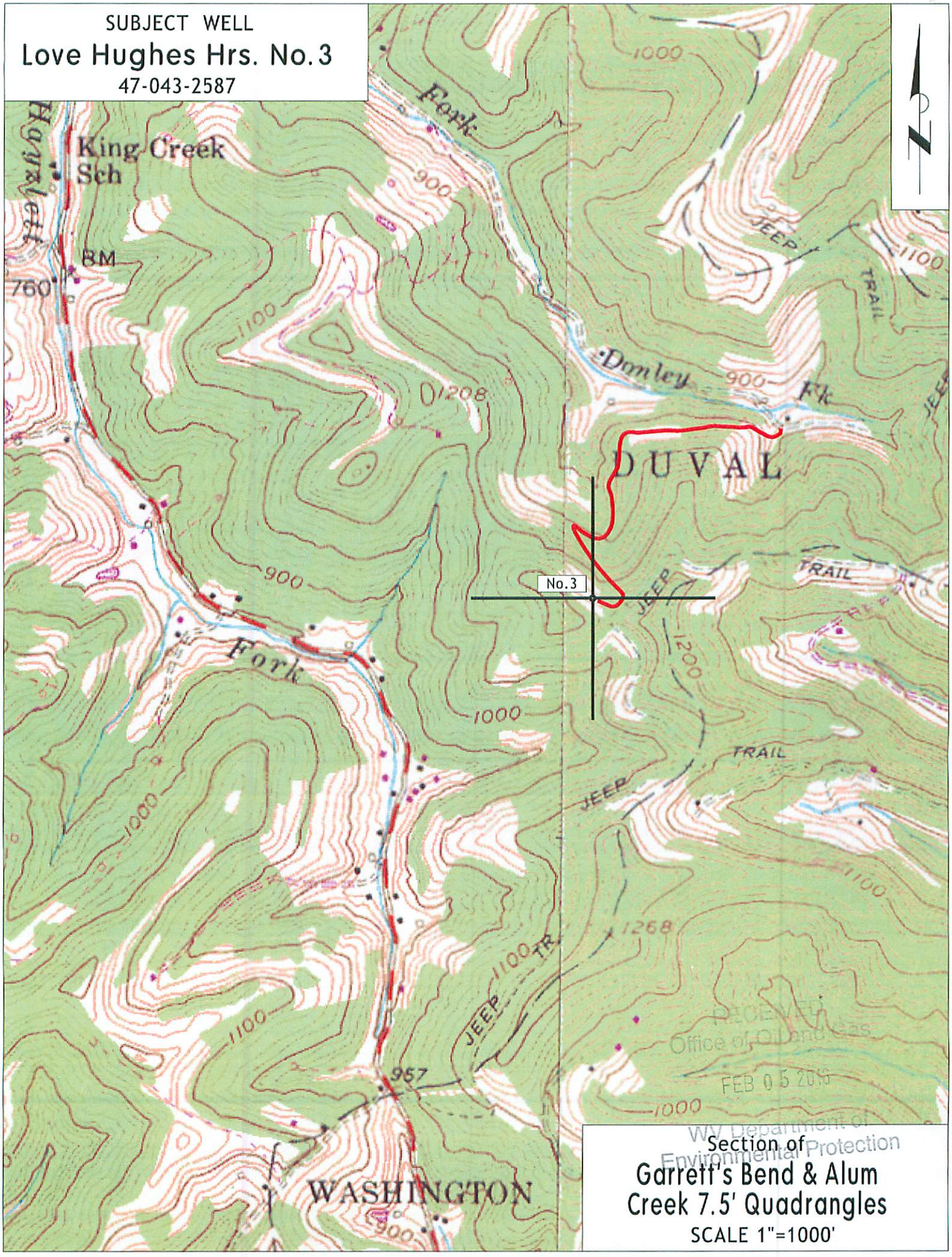
Field Reviewed? (_____) Yes (_____) No

4302587P

SUBJECT WELL

Love Hughes Hrs. No.3

47-043-2587



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Environmental Protection

Section of

Garrett's Bend & Alum Creek 7.5' Quadrangles

SCALE 1"=1000'

4302587P

WW-7
5-02

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

API: 47- 043 - 2587 **WELL NO:** 3

FARM NAME: Love Hughes Hrs. No.3

RESPONSIBLE PARTY NAME: H.G. Energy, LLC

COUNTY: Lincoln **DISTRICT:** Duval

QUADRANGLE: Alum Creek 7.5'

SURFACE OWNER: Love Hughes Hrs.

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

UTM GPS NORTHING: 4,235,641 (NAD 83)

UTM GPS EASTING: 423,542 (NAD 83) **GPS ELEVATION:** 1145 349 m.

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	X	Post Processed Differential	X
		Real-Time Differential	___

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 — Designated Agent
Signature — Title

November 24, 2015
Date

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