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 11, 2016

WELL WORK PLUGGING PERMIT

Plugging

This permit, API Well Number: 47-4301574, 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: 1
Farm Name: BOWMAN, SAMUEL
API Well Number: 47-4301574
Permit Type: Plugging
Date Issued: 02/11/2016

4301574P

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.

4301574P

WW-4B
Rev. 2/01

1) Date January 8, 2016
2) Operator's
Well No. Samuel Bowman 1
3) API Well No. 47-043 -1574

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 1114' Watershed Hayzlett Fork
District Duval County Lincoln Quadrangle Garrett's Bend 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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Office of Oil and Gas
FEB 04 2016
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

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WW-4B - Conti
Rev. 2/01

1) Date: January 11, 2016
2) Operator's Well Number
Samuel Bowman 1
3) API Well No: 47 - 043 - 1574
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: 1114' Watershed: Hayzlett Fork
District: Duval County: Lincoln Quadrangle Garretts Bend 7.5'

6) WELL OPERATOR: HG Energy, LLC 4.94E+08
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- 2,660'

Manners of plugging:
Plug #1 - ~~2400'~~ - ~~2300'~~ 2550-2450 Tag plug & reset if needed
Located above the highest perforation
Free point, part and pull 4 1/2" casing at approx ~~1800'~~ 1950
Plug # 2 - Approx. ~~1850'~~ - ~~1750'~~ 2000-1900
Located at 4 1/2" casing stub
Plug #3 - 1175' - 1075'
Located at elevation
Plug #4 - 450' - 350'
Located at 8 5/8" casing shoe, fresh water
Plug # 5 - 100' - 0'
Surface

if unable to pull, set 100ft cement plug across cut & cut again & pull below Sea level

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

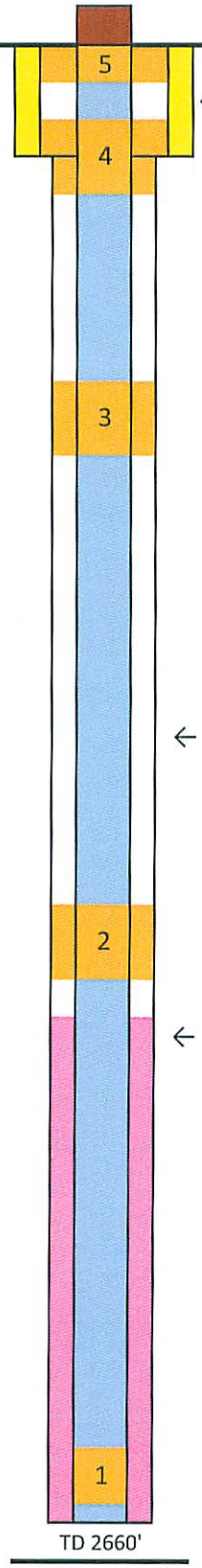
4301574P

Well: Samuel Bowman #1

Elevation: 1122'

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"	414'	20#/ft.
4 1/2"	2659'	10.5#/ft.



← 275 sacks cement to surface

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

Cement Plugs		
NO.	Bottom	Top
1	2400	2300
2	1850	1750
3	1175	1075
4	450	350
5	100	0

← 6 3/4" Hole Size

← 90 Sks Cement T.O.C. 2106'

Highest Perforation 2595'

Bottom Hole Cement Level Calculations

# Sacks Used	Cement Depth
90	2106.543

Hole Size	Casing Size	Depth
6.75	4.5	2659

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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CEMENT PLUGS MUST BE CLASS A CEMENT WITH NO MORE THAN 3% $CaCl_2$ AND NO OTHER ADDITIVES.
gamm

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PENNZOIL COMPANY
Well Completion Report

Lease: SAMUEL BOWMAN Well No. 1 New Well X Old Well ___

District: Duval County: Lincoln State: West Virginia

Pool Name: Griffithsville Northeast Pool No. 57 Elevation 1122.32' KB:~~GL~~

Producing Formation: Berea Depth: From ____ to ____

Date Drilled In: October 23, 1974 Pays: Oil: From ____ to ____
From ____ to ____

Original Total Depth: 2660'

Gas: From ____ to ____
From ____ to ____

Plug Back Depth: 2632'

Production	Initial	Present	After Fracture
Oil			
Gas			

Surface Csg. set @ 8-5/8" 414' KB:~~GL~~ Gr. H-40 New:~~Used~~ Wt. 20# Collars ____

Cement Reg. Neat Amount 275 Sacks Plug Down @ 6:00 AM:~~PM~~ Date 10/19/74

Production Csg. set @ 4-1/2" 2659' KB:~~GL~~ Gr. K-55 New:Used Wt. 10.50# Collars ST&C

Cement 50/50 Posmix Amount 90 Sacks Plug Down @ 2:45 ~~AM~~:PM Date 10/24/74

Logged by: Basin Surveys Date: October 24, 1974

Logs Used: Gamma Ray-Compensated Density Caliper

Perforated by: McCullough Date: November 4, 1974

Perforations: 2595'-2603' - 4 holes/ft. - 20 holes

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Treatment Data

	Fluid	Sand	Acid	Solvent	Gel	Breaking Agent	Fluid Loss	F.R. Agent	N.E. Agent
Type	Lease Crude	20/40	15% HCl						Mor-Flo
Amount	553	23,000	500						4

Breakdown Pressure: 2300 Treating Pressure: Max. 3700 Min. 2500 Avg. 2600

Avg. Inj. Rate 24.0 BPM ISIP 1700 @ ____ AM:PM 5 min. SIP 1450

10 min. SIP 1400 15 min. SIP 1350 Other 1 hr. SIP 950#

EQUIPMENT USED

Service Company: Halliburton HHP 1589

By: George P. SanFilippo Date Fractured: 11/4/74

4301574P

WW-4A
Revised 6-07

1) Date: January 8, 2016
2) Operator's Well Number
Samuel Bowman 1

3) API Well No.: 47 - 043 - 01574 P

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: Crystal Greene
Address: 1 First American Way
Westlake, TX 76262

(b) Name:
Address:

(c) Name:
Address:

6) Inspector: Jeremy James
Address: P. O. 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.

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

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WV Department of Environmental Protection

Subscribed and sworn before me this 8th day of January

Notary Public

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

My Commission Expires NOVEMBER 2, 2021

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 deprivacyoffier@wv.gov.

4301574P

WW-9
(5/13)

Page _____ of _____

API Number 47 - 043 - 01574

Operator's Well No. Samuel Bowman 1

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 1114' 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 8th day of January, 2016

_____ Notary Public

My commission expires NOVEMBER 2, 2021

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

4301574F

Form WW-9

Operator's Well No. Samuel Bowman 1

Proposed Revegetation Treatment: Acres Disturbed 0.6 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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Title: Inspector 006 Date: 1-27-16

Field Reviewed? (_____) Yes (_____) No

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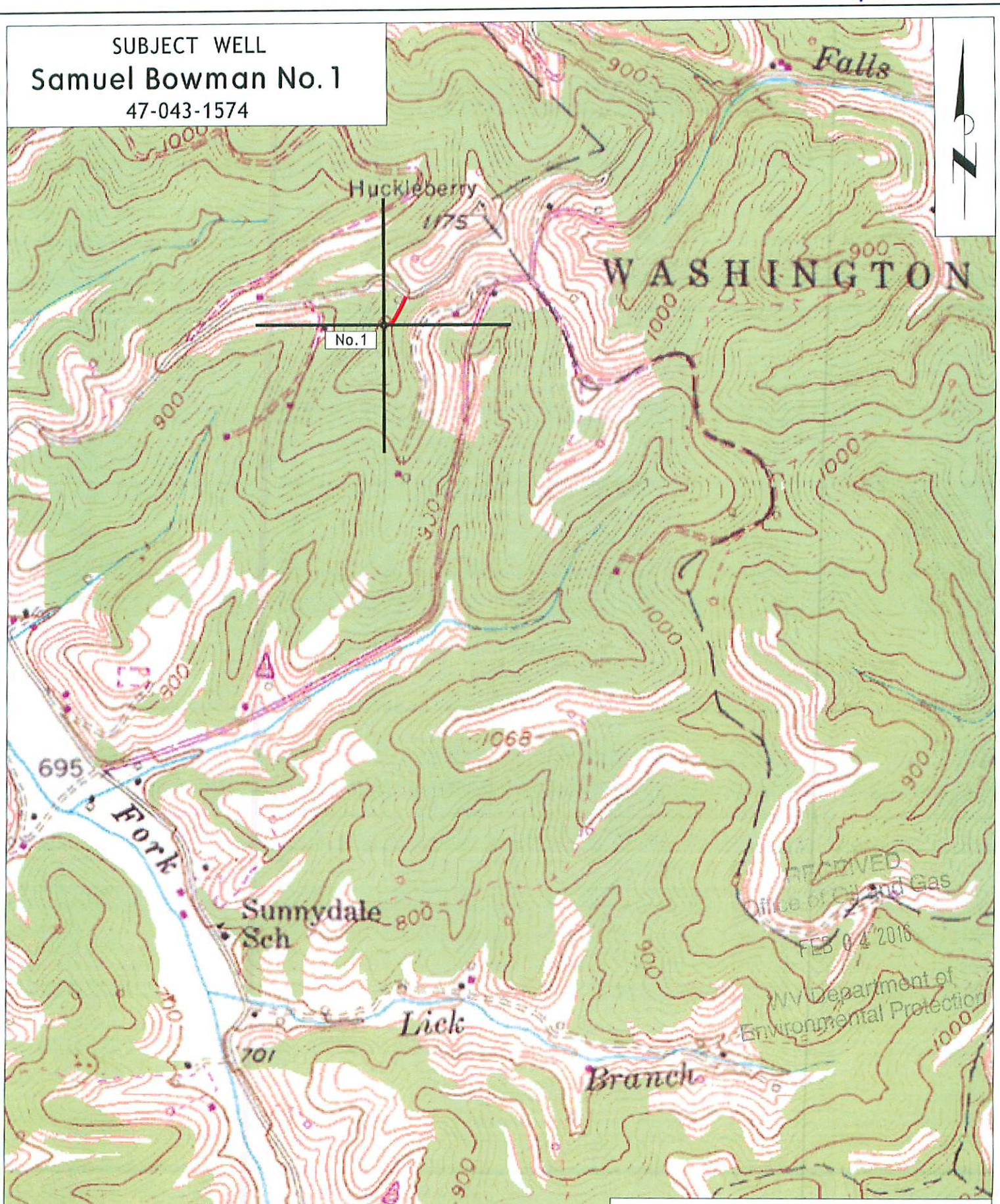
SUBJECT WELL

Samuel Bowman No. 1

47-043-1574



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Section of

Garrett's Bend 7.5' Quadrangle

SCALE 1"=1000'

4301574P

WW-7
5-02

West Virginia Department of Environmental Protection
Office of Oil & Gas

WELL LOCATION FORM: GPS

API: 47- 043 - 01574 **WELL NO:** 1

FARM NAME: Samuel Bowman No.1

RESPONSIBLE PARTY NAME: H.G. Energy, LLC

COUNTY: Lincoln **DISTRICT:** Duval

QUADRANGLE: Garrett's Bend 7.5'

SURFACE OWNER: Crystal Greene

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

UTM GPS NORTHING: 4,240,078 (NAD 83)

UTM GPS EASTING: 421,976 (NAD 83) **GPS ELEVATION:** 340 m. (1115')

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	___

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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