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

**Promoting a healthy environment.**

**02/12/2016**

## 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 - 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 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- 2,660'

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

*J.P.* 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

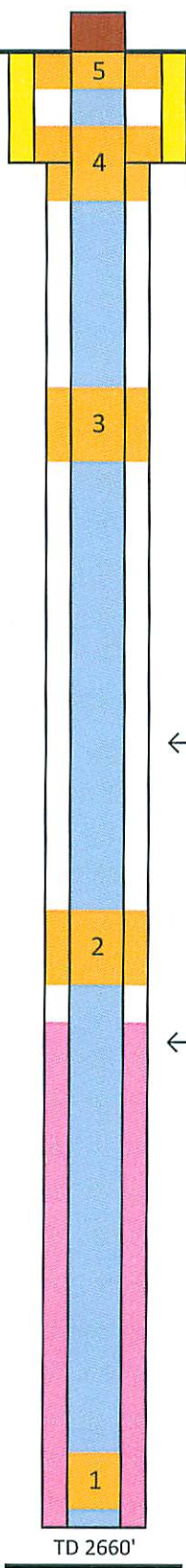
6% Gel between all plugs

Well: Samuel Bowman #1

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

Elevation: 1122'

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'

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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 FEB 04 2016

WV Department of Environmental Protection  
 Highest Perforation 2595'

TD 2660'

CEMENT PLUGS MUST BE CLASS A CEMENT WITH NO MORE THAN 3% CaCl<sub>2</sub> AND NO OTHER ADAPTIVES.  
 gmm



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 OF APPLICATION TO PLUG AND ABANDON A WELL**

4) Surface Owner(s) to be served:	5) (a) Coal Operator
(a) Name <u>Crystal Greene</u>	Name <u>NA</u>
Address <u>1 First American Way</u>	Address _____
<u>Westlake, TX 76262</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>	_____

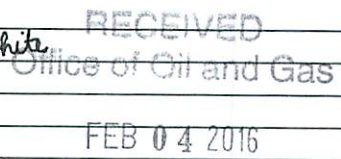
**TO THE PERSONS NAMED ABOVE:** You should have received this Form and the following documents:

- (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 8th day of January

My Commission Expires NOVEMBER 2, 2021

WV Department of Environmental Protection

OFFICIAL SEAL  
 NOTARY PUBLIC, STATE OF WEST VIRGINIA  
 MARK J SCHALL  
 HG Energy LLC  
 PO Box 5519, Vienna, WV 26106  
 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 [depprivacyofficer@wv.gov](mailto:depprivacyofficer@wv.gov).

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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Office of Oil and Gas

FEB 04 2016

WV Department of  
Environmental Protection

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Office of Oil and Gas

FEB 04 2016

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

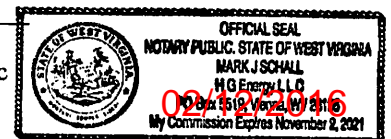
Company Official (Typed Name) Diane White

Company Official Title Agent

Subscribed and sworn before me this 8 h \_\_\_\_\_ day of January, 20 16

[Signature] Notary Public

My commission expires NOVEMBER 2, 2021





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

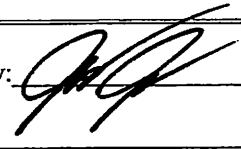
Seed Mixtures

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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 Office of Oil and Gas  
 FEB 04 2016  
 WV Department of  
 Environmental Protection

Title: Inspector OOG

Date: 1-27-16

Field Reviewed? ( ) Yes ( ) No

SUBJECT WELL  
**Samuel Bowman No. 1**  
47-043-1574



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

