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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

August 03, 2015

**WELL WORK PLUGGING PERMIT**

**Plugging**

This permit, API Well Number: 47-10301937, 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: IRENE REILLY 15  
Farm Name: WV PUBLIC LANDS CORP.  
**API Well Number: 47-10301937**  
**Permit Type: Plugging**  
Date Issued: 08/03/2015

## 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.
4. This well is under a consent order and must be plugged under the terms of that agreement.

10301937A

WW-4B  
Rev. 2/01

1) Date \_\_\_\_\_, 20\_\_\_\_  
2) Operator's  
Well No. Irene Reilly 15  
3) API Well No. 47-100 - 1007

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

5) Location: Elevation 1169' Watershed Fluharty Fork  
District Green County Wetzel Quadrangle Centerpoint 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 Derek Haught  
Address P. O. Box 85  
Smithville, WV 26178  
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 & Gas  
JUL 19 2015

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

Work order approved by inspector [Signature] Date 7-6-15

08/07/2015

10301937P

WW-4B  
Rev. 2/01

1) Date: June 25, 2015  
2) Operator's Well Number Irene Reilly 15  
3) API Well No: 47 - 103 - 1937  
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 \_\_\_\_\_ Liquid Injection \_\_\_\_\_ Waste Disposal \_\_\_\_\_  
(If "Gas", Production \_\_\_\_\_ Underground Storage \_\_\_\_\_ ) Deep \_\_\_\_\_ Shallow x  
5) LOCATION: Elevation: 1169' Watershed: Fluharty Fork  
District: Green County: Wetzel Quadrangle Centerpoint 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 Derek Haught Name To Be Determined Upon Approval of Permit  
Address PO Box 85 Address \_\_\_\_\_  
Smithville, WV 26178

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

TD- 3,200'

Manners of plugging:

Plug #1 3000' - 2900'

Located above highest perforation

Free point, part and pull 4 1/2" casing at approx. 2150'

Plug #2 - 2200' - 2100'

Located at 4 1/2" casing stub

Plug #3 - 1225' - 1125'

Located at elevation

Plug #4 -1000' - 900'

Located through Pittsburgh Coal

Plug #5 - 500' -400'

Located at 8 5/8" shoe, below Fresh Water

Plug #6 - 100' - 0'

DH  
7-6-15

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 & Gas  
JUL 13 2015

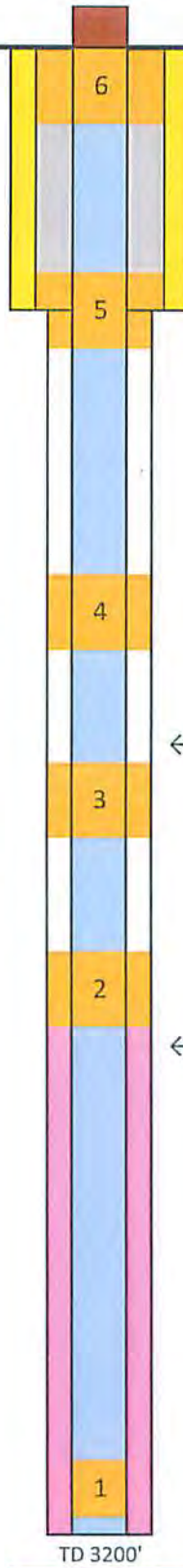
08/07/2015

Well: I. Reilly #15

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

Elevation: 1169'

Casing Information		
Size	Depth	Weight
7"	452	17#/ft.
4 1/2"	3140	10.5#/ft.



105 sacks cement to surface

Freepoint Cut and Pull Casing	
Size	Approx. Depth
4 1/2"	2150

Hole Size 8 3/4"

Cement Plugs		
NO.	Bottom	Top
1	3000	2900
2	2200	2100
3	1225	1125
4	1000	900
5	500	400
6	100	0

Pittsburgh Coal 931' →

← 6.5" Hole Size

Bottom Hole Cement Level Calculations

# Sacks Used                      Cement Depth  
 145                                      2276.842

Hole Size      Casing Size      Depth  
 6.5              4.5              3140

diameter delta      Conv. Factor      bbls / ft.  
 22                      1029.4              0.021372

cubic ft. per vertical ft. depth  
 0.119991257

Sacks per vertical ft. depth  
 0.16798776

Yield options

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

*DmH*  
 7-6-15

145 Sks Cement T.O.C. 2275'

Highest Perforation 3030'

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 Office of Oil & Gas  
 JUL 13 2015

WR-35

31-Mar-03  
API # 47 103 01937

State of West Virginia  
Division of Environmental Protection  
Section of Oil and Gas

Well Operator's Report of Well Work

COPIED

Farm name: WV Public Lands Corp

Operator Well No.: I REILLY 15

LOCATION: Elevation: 1,169.00

Quadrangle: CENTERPOINT 7.5'

District: GREEN

County: WETZEL

Latitude: 2,075 Feet south of

39 Deg 30 Min 0 Sec.

Longitude: 7,500 Feet west of

80 Deg 40 Min 00 Sec.

Company: EAST RESOURCES, INC.  
P.O. BOX 5519  
VIENNA, WV 26105-5519

Agent: MICHAEL MCCOWN

Inspector: MIKE UNDERWOOD

Permit Issued: 03/31/03

Well work Commenced: 04/14/03

Well work Completed: 07/20/03

Verbal plugging

permission granted on:

Rotary X Cable      Rig

Total Depth (feet) 3200'

Fresh water depths (ft) NA

Salt water depths (ft) NA

Is coal being mined in area (Y/N)      N

Coal Depths (ft):      NA

Casing & Tubing Size	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
7"	451.60'	451.60'	105 sks
4 1/2"	3139.20'	3139.20'	145 sks

OPEN FLOW DATA Waterflood producer

Producing formation      Gordon      Pay zone depth (ft)      3018'-3039'

Gas: Initial open flow      MCF/d Oil: Initial open flow      Bbl/d

Final open flow      MCF/d Final open flow      Bbl/d

Time of open flow between initial and final tests      Hours

Static rock pressure      psig (surface pressure) after      Hours

Second producing formation      Pay zone depth (ft)     

Gas: Initial open flow      MCF/d Oil: Initial open flow      Bbl/d

Final open flow      MCF/d Final open flow      Bbl/d

Time of open flow between initial and final tests      Hours

Static rock pressure      psig (surface pressure) after      Hours

Received  
Office of Oil & Gas  
JUL 18 2015

NOTE: ON BACK OF THIS FORM, PUT THE FOLLOWING: 1) DETAILS OF PERFORATED INTERVALS, FRACTURING OR STIMULATING, PHYSICAL CHANGE, ETC. 2) THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE

For: EAST RESOURCES, INC.

By:      Ben White

Date:      8/19/03

**Treatment :** Treated perforations 3030'-3039' w/ 250 gals 15% HCL, 312 bbls cross linked gel and 14,900 # 20/40 sand

**Well Log :**

Sand and Shale	0'	254'
Sand	254'	268'
Shale	268'	324'
Sand	324'	334'
Shale	334'	376'
Sand	376'	410'
Shale	410'	725'
Sand	725'	820'
Shale	820'	934'
Sand	934'	950'
Shale	950'	1020'
Sand	1020'	1032'
Shale	1032'	1134'
Sand	1134'	1160'
Shale	1160'	1358'
Sand	1358'	1408'
Shale	1408'	1470'
Sand	1470'	1508'
Shale	1508'	1564'
Sand	1564'	1606'
Shale	1606'	1744'
Sand	1744'	1786'
Shale	1786'	1944'
Shale	1944'	2184'
Big Lime	2184'	2260'
Big Injun	2260'	2420'
Shale	2420'	2998'
Gordon Stray	2998'	3011'
Shale	3011'	3019'
Gordon shale	3019'	3040'
shale	3040'	3200'
TD	3200'	

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Office of Oil & Gas

JUL 13 2015

08/07/2015

1) Date: June 25, 2015  
2) Operator's Well Number  
Irene Reilly 15  
3) API Well No.: 47 - 103 - 1937

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: (a) Name WW DNR, Address Capital Complex, B3, Room 643, Charleston, WV 25305. 5) (a) Coal Operator Name NA, Address. (b) Coal Owner(s) with Declaration Name NA, Address. (c) Coal Lessee with Declaration Name NA, Address. 6) Inspector Derek Haught, Address P. O. Box 85, Smithville, WV 26178, Telephone 304-549-9823.

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 (Signature)
Agent
Address 5260 Dupont Road, Parkersburg, WV 26101
Telephone 304-420-1119

Subscribed and sworn before me this 25th day of June, 2015

(Signature of Notary Public)

My Commission Expires Oct. 4, 2016

Received Office of Oil & Gas JUL 13 2015

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.

08/07/2015



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

CONSTRUCTION AND RECLAMATION PLAN AND SITE REGISTRATION APPLICATION FORM  
GENERAL PERMIT FOR OIL AND GAS PIT WASTE DISCHARGE

Operator Name HG Energy, LLC OP Code 494497948

Watershed Fluharty Fork Quadrangle Centerpoint 7.5'

Elevation 1169' County Wetzel District Green

Description of anticipated Pit Waste: Fluids encountered while plugging subject well

Will a synthetic liner be used in the pit? Yes 20 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 \_\_\_\_\_)

Proposed Work For Which Pit Will Be Used:

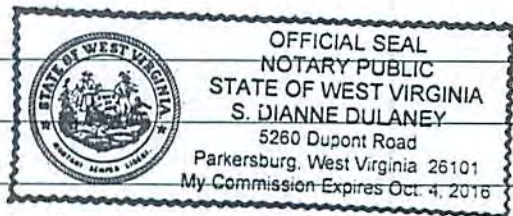
- Drilling
- Workover
- Other (Explain \_\_\_\_\_)
- Swabbing
- Plugging

DWH  
7-6-15

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 25 day of June, 2015

[Signature] Notary Public

My commission expires Oct. 4, 2016

**LEGEND**

- Property Boundary
- Road
- Existing Fence
- Planned Fence
- Stream
- Open Ditch
- Rock
- North
- Buildings
- Water wells
- Drill site

- Diversion
- Spring
- Wet Spot
- Drain Pipe with size in inches
- Waterway
- Cross Drain
- Artificial Filter Strip
- Pit: cut walls
- Pit: compacted fill walls
- Area for Land Application of Pit Waste

Proposed Revegetation Treatment: Acres Disturbed 1.1 Prevegetation pH \_\_\_\_\_  
 Lime 3 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

Seed Type	Area I lbs/acre	Seed Type	Area II 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.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by:

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

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 Office of Oil & Gas  
 JUL 13 2015

Title: Oil & Gas Inspector Date: 7-6-15

Field Reviewed?  Yes  No

10301937P

SUBJECT WELL  
Irene Reilly No. 15  
47-103-1937



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JUL 13 2015

DMH  
7-6-15  
Section of  
Centerpoint 7.5' Quadrangle  
SCALE 1"=1000'  
08/07/2015

10301937P

WW-7  
5-02

West Virginia Department of Environmental Protection  
Office of Oil & Gas

**WELL LOCATION FORM: GPS**

API: 47- 103 - 01937 WELL NO: 15

FARM NAME: Irene Reilly No.15

RESPONSIBLE PARTY NAME: H.G. Energy, LLC

COUNTY: Wetzel DISTRICT: Green

QUADRANGLE: Centerpoint 7.5'

SURFACE OWNER: W.Va. Dept. of Natural Resources

ROYALTY OWNER: American Energy Partners, LLC et al.

UTM GPS NORTHING: 4,371,684 (NAD 83)

UTM GPS EASTING: 526,389 (NAD 83) GPS ELEVATION: 350 m. (1148.5)

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	<input type="checkbox"/> Post Processed Differential	<input type="checkbox"/>
	<input type="checkbox"/> Real-Time Differential	<input type="checkbox"/>
Mapping Grade GPS	<input checked="" type="checkbox"/> Post Processed Differential	<input checked="" type="checkbox"/>
	<input type="checkbox"/> Real-Time Differential	<input type="checkbox"/>

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 C. White  
Signature

June 3, 2015  
Date

Received  
Office of Oil & Gas  
Designated Agent  
JUL 13 2015  
Title

08/07/2015