



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

August 03, 2015

WELL WORK PLUGGING PERMIT

Plugging

This permit, API Well Number: 47-10301644, 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: M. REILLY S-20
Farm Name: DEPT. NATURAL RESOURCES
API Well Number: 47-10301644
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

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.

1) Date _____, 20____
2) Operator's
Well No. Michael Reilly S-20
3) API Well No. 47-103-1544

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 1461' Watershed Bob Campbell Run
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 18 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

10301644P

WW-4B
Rev. 2/01

1) Date: June 23, 2015
2) Operator's Well Number Michael Reilly S-20
3) API Well No: 47 - 103 - 1644
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: 1461' Watershed: Bob Campbell Run
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- 3,655'

Manners of plugging:

- Plug #1 3500' - 3400'
Located above highest preforation
Free point, part and pull 4 1/2" casing at approx. 2400'
- Plug #2 - 2450' - 2350'
Located at 4 1/2" casing stub
- Plug #3 - 1500' - 1400'
Located at elevation and 8 5/8" casing shoe
- Plug #4 -1280' - 1180'
Located at Pittsburgh Coal
- Plug #5 - 350' -250'
Fresh Water
- Plug #6 - 100' - 0'

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

DMH
7-6-15
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Office of Oil & Gas
JUL 13 2015

08/07/2015

Well: M. Reilly S-20

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

Elevation: 1461'

Casing Information		
Size	Depth	Weight
8 5/8"	1457'	20#/ft.
4 1/2"	3595'	10.5#/ft.

Hole Size 11" →

Pittsburgh Coal 1232'

Bottom Hole Cement Level Calculations

Sacks Used Cement Depth
 300 2558.017

Hole Size Casing Size Depth
 7.875 4.5 3595

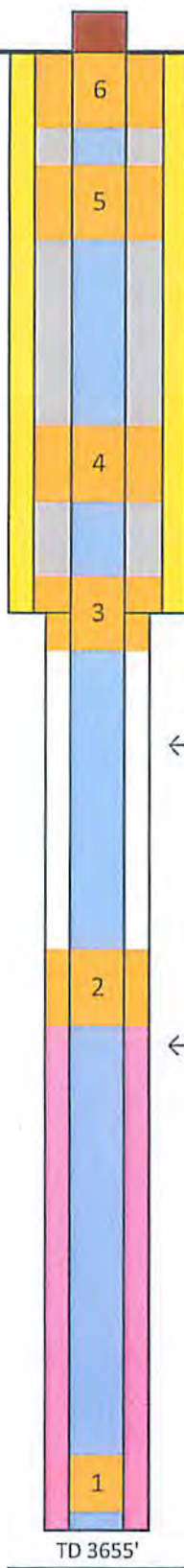
diameter delta Conv. Factor bbls / ft.
 41.765625 1029.4 0.040573

cubic ft. per vertical ft. depth
 0.227795902

Sacks per vertical ft. depth
 0.289300796

Yield options

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



← 370 sks cement to surface

Freepoint Cut and Pull Casing	
Size	Approx. Depth
4 1/2"	2400'

Cement Plugs		
NO.	Bottom	Top
1	3500	3400
2	2450	2350
3	1500	1400
4	1280	1180
5	350	250
6	100	0

← 7 7/8" Hole Size

DM4
7-6-15

← 300 Sks Cement T.O.C. 2560'

Received
 Office of Oil & Gas
 Highest Perforation 3522'
 JUL 13 2015

TD 3655'

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

Well Operator's Report of Well Work

Farm name: DEPT. NATURAL RESOURCES Operator Well No.: M. REILLY S-20

LOCATION: Elevation: 1,461.00 Quadrangle: CENTER POINT

District: GRANT County: WETZEL
Latitude: 2700 Feet South of 39 Deg. 30Min. 0 Sec.
Longitude 8200 Feet West of 80 Deg. 37 Min. 30 Sec.

Company: PENNZOIL PRODUCTS COMPANY

P. O. BOX 5519
VIENNA, WV 26105-5519

Agent: JAMES A. CREWS

Inspector: RANDAL MICK
Permit Issued: 10/04/94
Well work Commenced: 10/05/94
Well work Completed: 10/20/94
Verbal Plugging
Permission granted on: _____
Rotary X Cable _____ Rig
Total Depth (feet) 3655
Fresh water depths (ft) N/A

Salt water depths (ft) N/A

Is coal being mined in area (Y/N)? N
Coal Depths (ft): N/A

Casing & Tubing	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
Size			To surface
8-5/8	1457'	1457'	320 sks.
4-1/2	3595'	3595'	300 sks.

OPEN FLOW DATA * Water Injection Well

Producing formation Gordon Pay zone depth (ft) 3502-3546
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

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

Received
Office of Oil & Gas

JUL 13 2015

For: PENNZOIL PRODUCTS COMPANY

By: [Signature]
Date: 1/4/95

Drilling Prognosis
M. J. REILLY S-20
 Page 2

DRILLING TIME AND SAMPLES: One foot drilling time from surface to total depth.
 Ten foot samples from 2600' to total depth.

LOGGING: To be determined at time of drilling.

PIPE TALLY: Drill string will be strapped out on last trip at or before coring point or total depth is reached. If a correction of more than five feet (5') is necessary, then drill string is to be strapped going back in hole.

FORMATION TOPS:

Pittsburgh Coal	1232' K.B.
Big Lime	2638' K.B.
Big Injun	2727' K.B.
Pocono Shale	2880' K.B.
Gordon	3515' K.B.
Total Depth	3653' K.B.

CALL DRILLING SUPT. AFTER SURFACE CASING IS SET

SUPERVISION: A morning report will be called into the Parkersburg office by 8:00 a.m. each morning.

Rick Green	Area Supt.	782-2216	782-4248
Dale Workman	Foreman	889-3334	889-2278
Phil Ondrusek	Operations Supt.	422-6565	464-5373
Paul King, Jr.	Petr. Eng. Advisor	422-6565	(614) 984-2387
Jack Sutherland	Drilling Supt.	422-6565	(614) 989-5138
Roger Heldman	Sr. Petr. Eng.	422-6565	(614) 678-8210
Bill Greenlees	Sr. Petr. Eng.	422-6565	(614) 749-3542
Greg Morrison	Geologist	422-6565	(614) 373-0339
Bill Toomey	Geologist	422-6565	(614) 423-7054

Received
 Office of Oil & Gas
 JUL 13 2015

1) Date: June 23, 2015
2) Operator's Well Number
Michael Reilly S-20

3) API Well No.: 47 - 103 - 1644

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

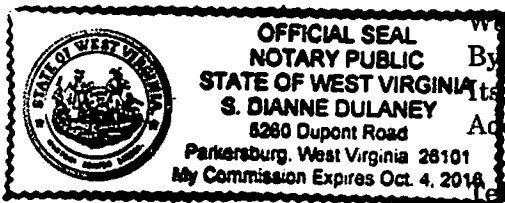
4) Surface Owner(s) to be served:	5) (a) Coal Operator
(a) Name <u>WV DNR</u>	Name <u>NA</u>
Address <u>Capital Complex, B3, Room 643</u> <u>Charleston, WV 25305</u>	Address _____
(b) Name _____	(b) Coal Owner(s) with Declaration
Address _____	Name <u>NA</u>
(c) Name _____	Address _____
Address _____	Name <u>NA</u>
6) Inspector <u>Derek Haught</u>	(c) Coal Lessee with Declaration
Address <u>P. O. Box 85</u>	Name <u>NA</u>
<u>Smithville, WV 26178</u>	Address _____
Telephone <u>304-549-9823</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	<u>HG Energy, LLC</u>
By	<u>Diane White</u> <i>Diane White</i>
Agent	_____
Address	<u>5260 Dupont Road</u>
	<u>Parkersburg, WV 26101</u>
Telephone	<u>304-420-1119</u>

Received
Office of Oil & Gas
JUL 13 2015

Subscribed and sworn before me this 23rd day of June, 2015
S. Dianne Dulaney Notary Public
My Commission Expires Oct. 4, 2016

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.

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 Bob Campbell Run Quadrangle Centerpoint 7.5'

Elevation 1461' 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 all.

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 _____)

*DMH
7-6-15*

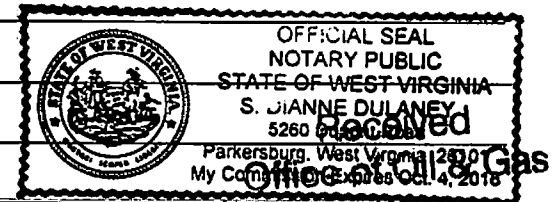
Proposed Work For Which Pit Will Be Used:

- Drilling
- Workover
- Other (Explain _____)
- Swabbing
- Plugging

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 23 day of June, 2015 JUL 18 2015

S. Jianne Dulaney 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:

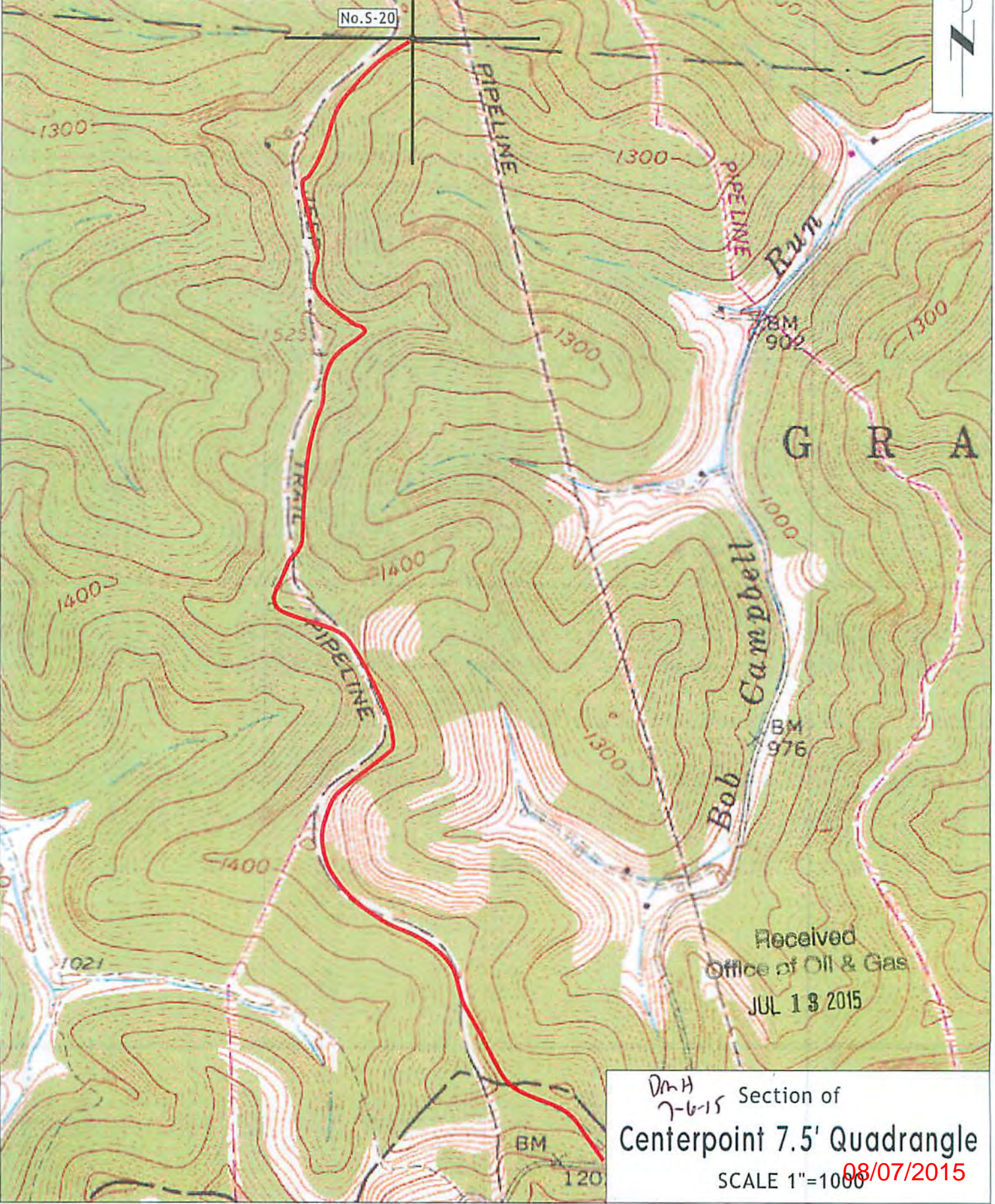
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Office of Oil & Gas
JUL 18 2015

Comments: _____

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

Field Reviewed? Yes No

SUBJECT WELL
Michael Reilly No.S-20
47-103-1644



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Office of Oil & Gas
JUL 13 2015

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

West Virginia Department of Environmental Protection
Office of Oil & Gas

WELL LOCATION FORM: GPS

API: 47- 103 - 01644 WELL NO: S-20

FARM NAME: Michael Reilly No.S-20

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: 4,371,486 (NAD 83)

UTM GPS EASTING: 529,760 (NAD 83) GPS ELEVATION: 444 m. (1456')

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"/>
		Real-Time Differential	<input type="checkbox"/>
Mapping Grade GPS	<input checked="" type="checkbox"/>	Post Processed Differential	<input checked="" 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 White Diane C. White
Signature

June 3, 2015
Date

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