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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

October 25, 2013

**WELL WORK PERMIT**  
**Secondary Recovery Well**

This permit, API Well Number: 47-10301633, 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.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926-0499 ext. 1654.

James Martin  
Chief

Operator's Well No: M. J. REILLY O-19  
Farm Name: WV PUBLIC LANDS

**API Well Number: 47-10301633**

**Permit Type: Secondary Recovery Well**

Date Issued: 10/25/2013

# 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. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6-20, which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
2. Pursuant to 35 CSR § 4-19.1.a, at the request of the surface owner all water wells or springs within 1000 feet of the proposed well that are actually utilized for human consumption, domestic animals or other general use shall be sampled and analyzed.
3. Pursuant to 35 CSR § 4-19.1.c, if the operator is unable to sample and analyze any water well or spring within one thousand (1,000) feet of the permitted well location, the Office of Oil and Gas requires the operator to sample, at a minimum, one water well or spring located between one thousand (1,000) feet and two thousand (2,000) feet of the permitted well location.
4. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
5. 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.
6. During the surface casing and cementing process, in the event cement does not return to the surface, or any other casing string that is permitted to circulate cement to the surface and does not return to the surface, the oil and gas inspector shall be notified within twenty-four (24) hours.
7. Well work activities shall not constitute a hazard to the safety of persons.
8. If well work related activities require the use of water obtained by withdrawals from waters of this state in amounts that exceed two hundred ten thousand gallons during any thirty day period, the operator is required to consult, and adhere to, the guidance provided by DEP's Water Withdrawal Guidance Tool prior to any water withdrawals.



WW-3B  
10/07



- 1) Date August 13, 2013
- 2) Operator's Well No. MJ Reilly O-19
- 3) API Well No. 47 - 103 - 1633  
State County Permit
- 4) UIC Permit No. UIC2R09501AP

**STATE OF WEST VIRGINIA  
NOTICE OF LIQUID INJECTION OR WASTE DISPOSAL WELL WORK PERMIT APPLICATION  
FOR THE DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**

- 5) WELL TYPE: Liquid Injection  Gas Injection (not storage) \_\_\_\_\_ Waste Disposal \_\_\_\_\_
- 6) LOCATION: Elevation 1438' Watershed Piney Fork  
District Green 05 County Wetzel 103 Quadrangle Centerpoint 7.5" 286
- 7) WELL OPERATOR: HG Energy, LLC 494497948  
5260 Dupont Road  
Parkersburg, WV 26101
- 8) DESIGNATED AGENT: Mike Kirsch  
5260 Dupont Road  
Parkersburg, WV 26101
- 9) OIL & GAS INSPECTOR TO BE NOTIFIED: Name Derek Haught  
Address P. O. Box 85  
Smithfield, WV 26178
- 10) DRILLING CONTRACTOR: Name \_\_\_\_\_  
Address \_\_\_\_\_
- 11) PROPOSED WELL WORK: Drill \_\_\_\_\_ Drill Deeper \_\_\_\_\_ Redrill \_\_\_\_\_ Stimulate   
Plug Off Old Formation \_\_\_\_\_ Perforate New Formation \_\_\_\_\_ Convert \_\_\_\_\_  
Other Physical Change in Well (specify) \_\_\_\_\_
- 12) Geological target formation Gordon Depth 3,494 Ft. (Top) to 3,534 Ft. (Bottom)
- 13) Estimated depth of completed well (or actual depth of existing well) 3656' Ft.
- 14) Approximate water strata depths: Fresh 618 Ft. Salt 1,645 Ft.
- 15) Approximate coal seam depths: 1250 Ft.
- 16) Is coal being mined in the area? Yes \_\_\_\_\_ X No \_\_\_\_\_
- 17) Virgin reservoir pressure in target formation: 1,400 psig. Source Estimated
- 18) Estimated reservoir fracture pressure: 3,500 psig.
- 19) MAXIMUM PROPOSED INJECTION OPERATIONS: Volume per hour 25 bbl Bottom Hole Pressure 2,332 psi
- 20) DETAILED IDENTIFICATION OF MATERIALS TO BE INJECTED, INCLUDING ADDITIVES and other chemicals as needed to maintain water quality and improve oil recovery. Fresh water, produced water, bactericides
- 21) FILTERS (IF ANY) Cartridge filters and/or coal bed filters
- 22) SPECIFICATION FOR CATHODIC PROTECTION AND OTHER CORROSION CONTROL \_\_\_\_\_

DMH  
8-14-13

23) CASING AND TUBING PROGRAM

CASING OR TUBING TYPE	SPECIFICATIONS					FOOTAGE INTERVALS		CEMENT FILLUP OR SACKS (CU. FT.)	PACKERS
	Size	Grade	Weight	New	Used	For Drilling	Left in Well		
Conductor									Kinds
Fresh Water	8 5/8"	LS & ST&C	20#	X		711'	711'	Existing Casing	Tension
Coal									
Intermediate									
Production	4 1/2"	J-55	10.5#	X		3566'	3566'	Existing Casing	2325" Dupont Set
Tubing	2 3/8"	J-55	4.6#	X		3400'	3400'		3300" Restorations
Liners									Top Bottom

**RECEIVED**  
**Office of Oil and Gas**  
**SEP 3 2013**  
**WV Department of Environmental Protection**

- 24) APPLICANTS OPERATING RIGHTS were acquired from George V. Reilly et ux  
by Deed \_\_\_\_\_ Lease  Other Contract \_\_\_\_\_ Dated September 23, 1897 of record in the  
Wetzel County Clerk's Office in Lease Book 47 at Page 81

**10/25/2013**

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

Well Operator's Report of Well Work

Farm name: WVA. PUBLIC LANDS Operator Well No.: M.J.REILLY 0-19

LOCATION: Elevation: 1,438.00 Quadrangle: CENTER POINT

District: GREEN County: WETZEL  
Latitude: 3550 Feet South of 39 Deg. 30Min. Sec.  
Longitude 1150 Feet West of 80 Deg. 40 Min. Sec.

Company: PENNZOIL PRODUCTS COMPANY  
P. O. BOX 5519  
VIENNA, WV 26105-5519

Agent: JAMES A. CREWS

Inspector: RANDAL MICK  
Permit Issued: 05/25/94  
Well work Commenced: 08/28/94  
Well work Completed: 09/23/94  
Verbal Plugging  
Permission granted on: \_\_\_\_\_  
Rotary X Cable \_\_\_\_\_ Rig  
Total Depth (feet) 3656  
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 8-5/8	710.85	710.85	To surface 290 sks.
4-1/2	3566'	3566'	300 sks.

OPEN FLOW DATA \* Water Injection Well

Producing formation Gordon Pay zone depth (ft) 3494-3534  
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). THE WELL LOG WHICH IS A SYSTEMATIC DETAILED GEOLOGICAL RECORD OF ALL FORMATIONS, INCLUDING COAL ENCOUNTERED BY THE WELLBORE.

For: PENNZOIL PRODUCTS COMPANY

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





WW-2B1

Well No. MJ Reilly O-19

West Virginia Department of Environmental Protection  
Office of Oil and Gas

NOTICE TO SURFACE OWNERS

The well operator named below is preparing to file for a permit from the state to drill a new well. Before a well work permit can be filed with the Chief of the Office of Oil and Gas, the well operator is required to have given notice of the right to request water well or spring analytical testing. This notice shall be given to the owners or occupants of land which have a water well or spring being utilized for human consumption, domestic animals, or other general use and which is located within 1000 feet of the proposed well site.

With this form, the operator is giving you notice of your right to request analytical testing, The operator is required to sample and analyze the water wells or springs of all owners or occupants who request it. Therefore if you wish to have your water well or spring tested, contact the operator named below.

All sampling shall be completed prior to drilling. Within thirty (30) days of the receipt of such sample analyses the operator shall submit the results to the Chief of the Office of Oil and Gas and to the owners or occupants who may have requested them.

If no water well or spring is located within 1000 feet, the Chief may require the operator to sample and analyze water from a water well or spring within 2000 feet of the proposed well site.

Be advised, you have the right to sample and analyze any water supply at your own expense.

The laboratory used by the operator to analyze the samples will be approved by the Chief. The operator named below has decided to use the following laboratory to analyze the water samples:

X Contractor Name Sturm Environmental Services  
           Well operator's private laboratory

Well Operator HG Energy, LLC  
Address 5260 Dupont Road  
Parkersburg, WV 26101  
  
Telephone 304-420-1119

FOR OPERATOR'S USE ONLY: Below, or on an attached page, list those persons which were given this notice. Place an asterisk beside the one(s) that contacted you and requested sampling and analyses. If there were no requests made, indicate by underlining which one you have selected to sample and analyze. If there are no water wells or springs within 1000 feet of the proposed site please indicate such.

No known Water Supply Sources are located within 2000' of proposed well. **RECEIVED**  
**Office of Oil and Gas**  
**SEP 20 2013**  
**WV Department of**  
**Environmental Protection**

103016335

Form WW-9  
Rev. 10/94

Page 3 of 3  
API Number 47- 103 - 1633

Operator's Well No. MJ Reilly O-19

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 HG Energy, LLC OP Code 494497948  
Watershed Piney Fork Quadrangle Centerpoint 7.5"  
Elevation 1438' County Wetzel District Green

Description of anticipated Pit Waste: Fluids encountered in drilling and stimulating existing well.

Do you anticipate more than 5,000 bbls of water to complete the proposed well work Yes        No X

Will a synthetic liner be used in pit? Yes        If so, what mil.? 20 Mil.

Proposed Disposal Method For Treated Pit Wastes:  
X Land Application  
       Underground Injection (UIC Permit Number       )  
       Reuse (at API Number       )  
       Off Site Disposal (Supply Form WW-9 for disposal location)  
       Other (Explain       )

*DMA*  
*8-19-13*

Drilling medium anticipated for this well? Air, fresh water, oil based, etc. NA  
- If oilbased, what type? Synthetic, petroleum, etc.       

Additives to be used?       

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Leave in pit  
- If left in pit and plan to solidify, what medium will be used? Cement, lime, sawdust Native soil, cement, lime  
- Landfill or offsite name/permit number?       

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.

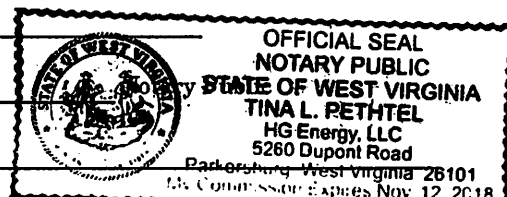
I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is 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 C. White  
Company Official Title Accountant

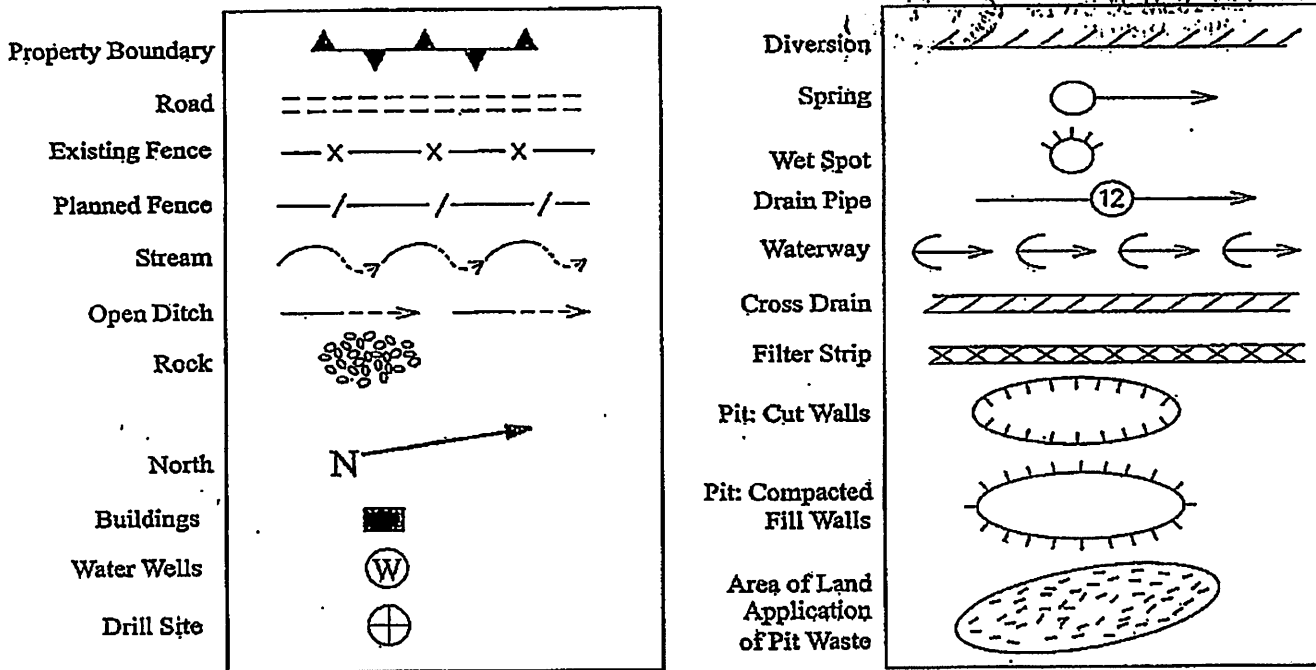
Subscribed and sworn before me this 18 day of August

*Tina L. Pethel*

My commission expires Nov 12, 2018



Legend



Proposed Revegetation Treatment: Acres Disturbed Area I Approx. 1.0 Ac. Prevegetation pH \_\_\_\_\_

Area II  
Approx. 0.3 Ac.

Lime 2 Tons/Acre or Correct to pH 6.5  
Fertilizer (10-20-20 or Equivalent) 500 Lbs./Acre (500 lbs. Minimum)  
Mulch Straw 2 Tons/Acre

SEED MIXTURES

<u>Area I (Location)</u>	
Seed Type	Lbs./Ac.
Tall Fescue	40
Ladino Clover	5

<u>Area II (Road)</u>	
Seed Type	Lbs./Ac.
Tall Fescue	40
Ladino Clover	5

Attach:  
Drawing(s) of road, location, pit and proposed area for land application  
Photocopied section of involved 7.5' topographic sheet.

Plan approved by: [Signature]  
Comments: \_\_\_\_\_

Title: Oil + Gas Inspection Date: 8-19-17

Field Reviewed? (  ) Yes (  ) No



10301633S

# Reclamation Plan For:

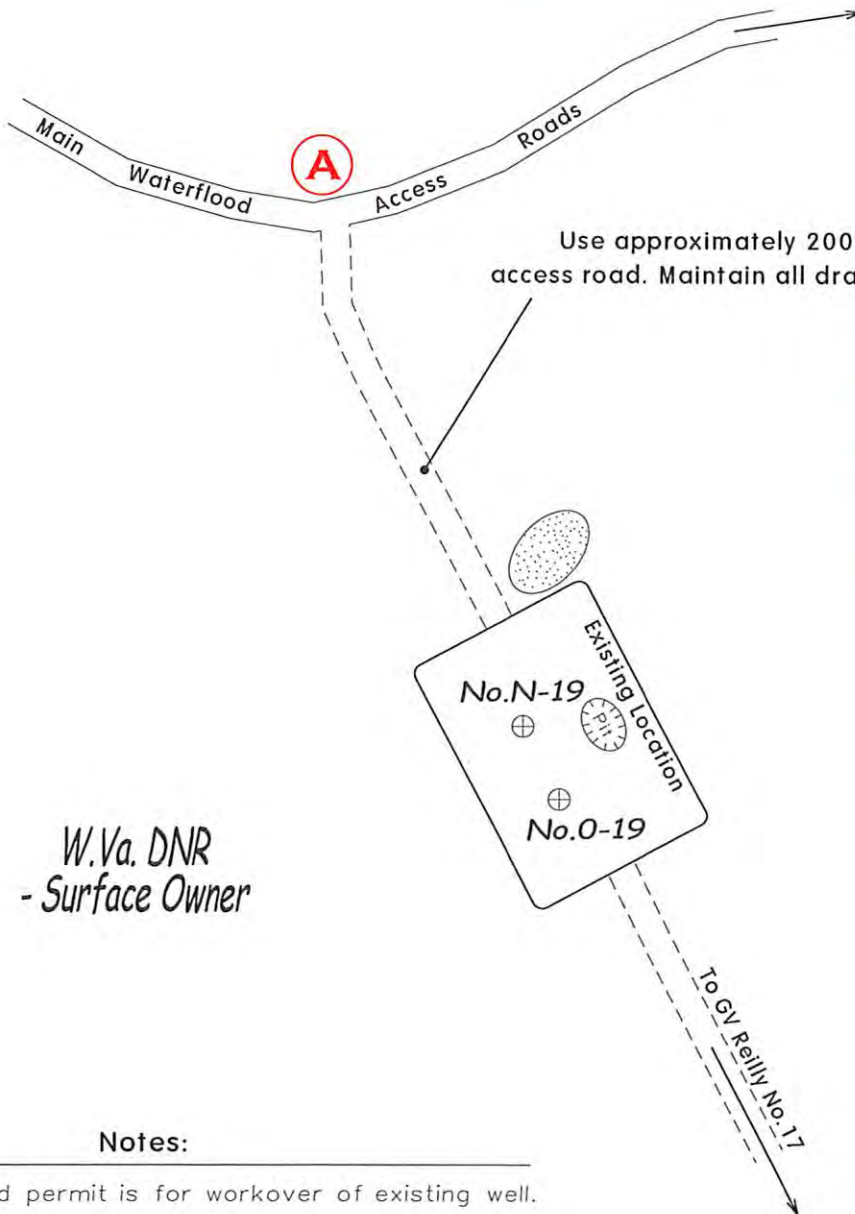
## M.J. Reilly No.0-19

47-103-1633



**NOTE:**  
WELL LOCATION WAS BUILT AND RECLAIMED UNDER DRILLING PERMIT No.47-103-1633. ONLY MINIMAL EARTHWORK WILL BE REQUIRED FOR PROPOSED WELL WORK. ALL DISTURBED AREAS WILL BE RE-VEGETATED AS PER THE SEEDING PLAN ON FORM WW-9. A SMALL WORKOVER PIT WILL BE CONSTRUCTED TO CONTAIN ANY FLUIDS RECOVERED DURING PROPOSED WELL WORK.

See Page 2 for Relamation Plan From Pt. (A) to County Road



**NOTE**  
REFER TO THE WVDEP EROSION AND SEDIMENT CONTROL FIELD MANUAL VER. MAY 2012 FOR BMPs CONTROLLING EROSION AND SEDIMENT FROM SOIL-DISTURBING OPERATIONS.

W.Va. DNR  
- Surface Owner

### Notes:

- Requested permit is for workover of existing well.
- Access from County Road to well location is existing. Structures will be maintained.
- All disturbed areas will be re-vegetated as outlined on Form WW-9.
- Maintain sediment barriers and drainage structures.
- All road grades <5% except as noted.
- Location of work-over pit may be changed based on as-built considerations.

RECEIVED  
Office of Oil and Gas  
SEP 20 2013  
WV Department of  
Environmental Protection  
8-15-13

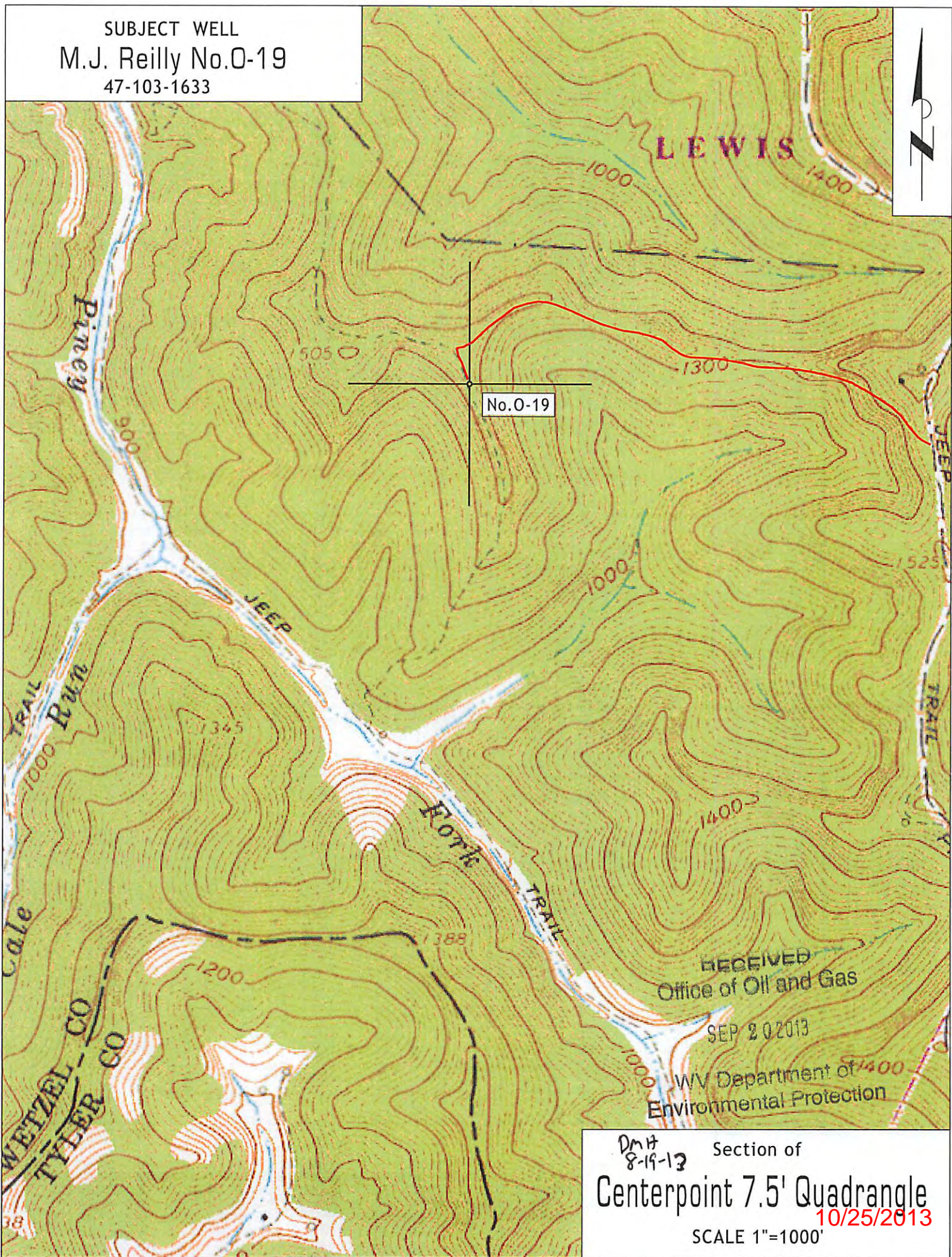
10/25/2013





10301633S

SUBJECT WELL  
M.J. Reilly No.0-19  
47-103-1633



RECEIVED  
Office of Oil and Gas  
SEP 20 2013  
WV Department of  
Environmental Protection

DmH  
8-19-13 Section of  
Centerpoint 7.5' Quadrangle  
SCALE 1"=1000'  
10/25/2013

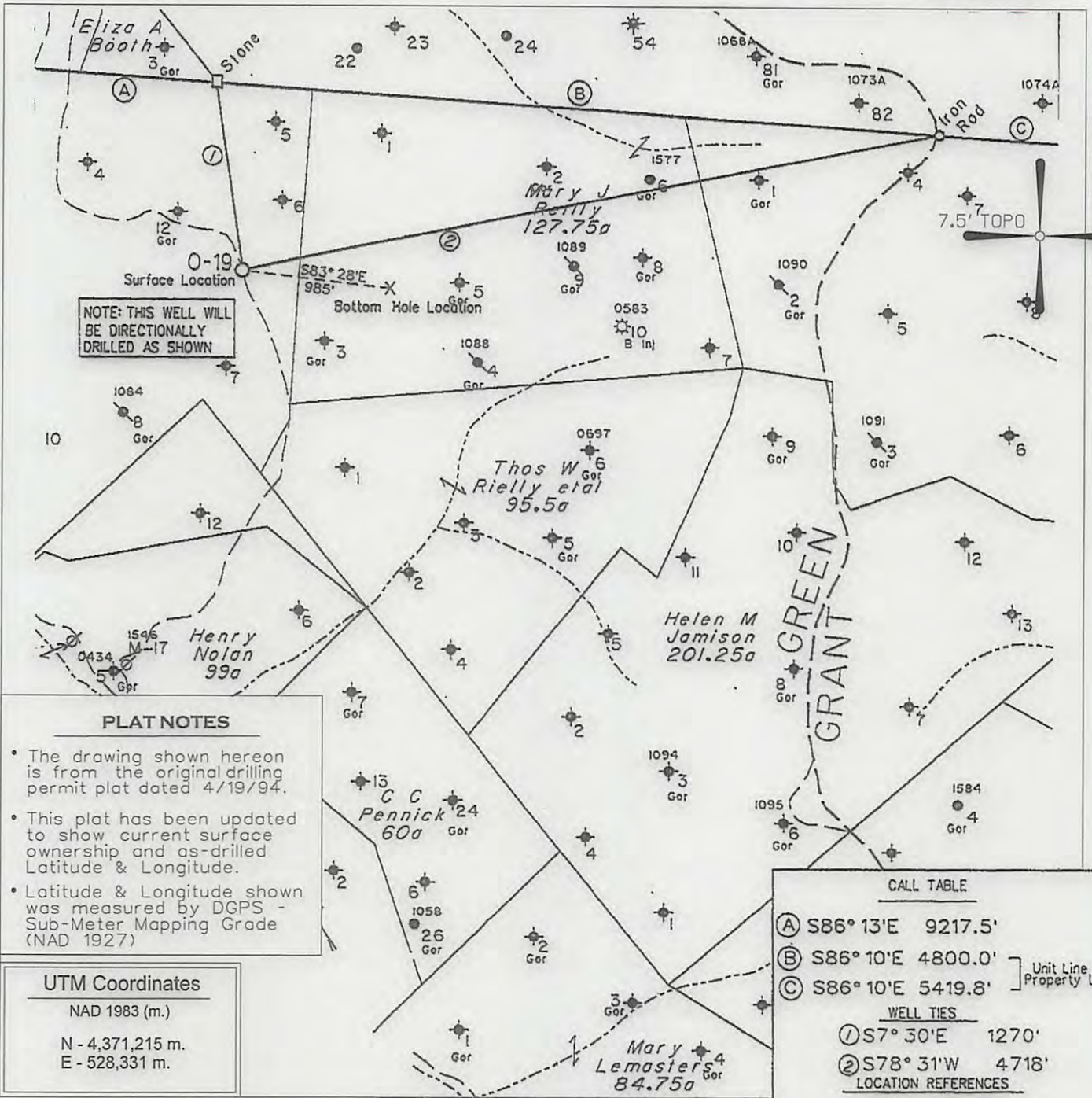


Longitude - 80° 40' 14.7" -1,150'

LATITUDE 39° 30' 00"

LONGITUDE 80° 40' 00"

Latitude - 39° 29' 24.9"



NOTE: THIS WELL WILL BE DIRECTIONALLY DRILLED AS SHOWN

PLAT NOTES

- The drawing shown hereon is from the original drilling permit plat dated 4/19/94.
- This plat has been updated to show current surface ownership and as-drilled Latitude & Longitude.
- Latitude & Longitude shown was measured by DGPS - Sub-Meter Mapping Grade (NAD 1927)

UTM Coordinates

NAD 1983 (m.)  
 N - 4,371,215 m.  
 E - 528,331 m.

CALL TABLE

- (A) S86° 13'E 9217.5'
  - (B) S86° 10'E 4800.0'
  - (C) S86° 10'E 5419.8'
- Unit Line & Property Line

WELL TIES

- (1) S7° 30'E 1270'
- (2) S78° 31'W 4718'

LOCATION REFERENCES

Existing Wells

— DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

FILE NO. \_\_\_\_\_  
 MAP NO. \_\_\_\_\_ N \_\_\_\_\_ S \_\_\_\_\_ E \_\_\_\_\_ W \_\_\_\_\_  
 SCALE \_\_\_\_\_ 1" = 1000'  
 MINIMUM DEGREE OF ACCURACY \_\_\_\_\_ Sub-Meter  
 PROVEN SOURCE OF ELEVATION \_\_\_\_\_ DGPS Survey  
 (Sub-Meter Mapping Grade)

I THE UNDERSIGNED, HEREBY CERTIFY THAT THIS PLAT 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 DEPARTMENT OF MINES.

(SIGNED) *[Signature]*  
 TIMOTHY P. ROUSH PS 793



WEST VIRGINIA  
 Division of Environmental Protection  
 Office of Oil and Gas  
 601 57th Street  
 Charleston, West Virginia 25304



DATE August 2, 2013  
 FARM M.J. Reilly No. 0-19  
 API WELL NO. 47-103-016335

WELL TYPE: OIL \_\_\_ GAS \_\_\_ LIQUID INJECTION  WASTE DISPOSAL \_\_\_  
 (IF "GAS") PRODUCTION \_\_\_ STORAGE \_\_\_ DEEP \_\_\_ SHALLOW \_\_\_  
 LOCATION: ELEVATION 1,438' WATERSHED Piney Fork  
 DISTRICT Green COUNTY Wetzel  
 QUADRANGLE Centerpoint 7.5'

SURFACE OWNER State of West Virginia ACREAGE 127 Ac.  
 OIL & GAS ROYALTY OWNER HG Energy LLC et al LEASE ACREAGE 128 Ac. 10/25/2013  
 LEASE NO. \_\_\_\_\_

PROPOSED WORK: DRILL \_\_\_ CONVERT \_\_\_ DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION \_\_\_ PERFORATE NEW FORMATION \_\_\_ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_

PLUG AND ABANDON \_\_\_ CLEAN OUT AND REPLUG \_\_\_  
 TARGET FORMATION Gordon ESTIMATED DEPTH 3,656'  
 WELL OPERATOR HG Energy, LLC DESIGNATED AGENT Mike Kirsch  
 ADDRESS 5260 Dupont Road ADDRESS 5260 Dupont Road  
 Parkersburg, WV 26101 Parkersburg, WV 26101

FORM IV-6





**HG Energy, LLC**  
5260 Dupont Road  
Parkersburg, WV 26101  
(304) 420-1100 - Office  
(304) 863-3172 - Fax

100  
10301633 S

✓ #2350  
\$650~~00~~

August 13, 2013

Mr. Jeff McLaughlin  
WVDEP  
Division of Oil & Gas  
601 57<sup>th</sup> Street  
Charleston, West Virginia 25304

RE: M. J. Reilly No. O-19 (API 47-103-1633)  
Green District, Wetzel County  
West Virginia

Dear Mr. McLaughlin:

Enclosed are the Forms WW-3A, WW-3B, WW-9, WW-2(B1), mylar of plat, reclamation plan, topo map and copy of the certified mailing receipt for a permit to stimulate the above-captioned injection well. Our check in the amount of \$650 is attached.

If you have any questions regarding this application, please call me at 304-420-1119 or email at [dwhite@hgeneryllc.com](mailto:dwhite@hgeneryllc.com).

Very truly yours,

Diane C. White

Enclosures

cc: WV Public Lands Corporation – Certified  
Derek Haught - Inspector

RECEIVED  
Office of Oil and Gas  
SEP 20 2013  
WV Department of  
Environmental Protection

10/25/2013