



**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. Huffiman, Cabinet Secretary  
www.dep.wv.gov

September 09, 2014

**WELL WORK PERMIT**  
**Horizontal Well**

This permit, API Well Number: 47-8510158, 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: 900 N-1H  
Farm Name: HEARTWOOD FORESTLAND FU  
**API Well Number: 47-8510158**  
**Permit Type: Horizontal Well**  
Date Issued: 09/09/2014

**Promoting a healthy environment.**

**09/12/2014**

# 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. This permit is being conditioned to address the possibility of flooding in the area of this well. Any tanks stored on this location must be securely anchored in cement to prevent the loss of tanks should a flood occur. In addition, cages must be placed around the well head to prevent debris from damaging the well head.

09/12/2014



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

RECEIVED  
 Office of Oil and Gas

September 8, 2014

SEP 9 2014

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

WV Department of  
 Environmental Protection

RE: Hartley 900 No. N-1H - Area of Review Study  
 Murphy District, Ritchie County  
 West Virginia

OK gawm

Dear Mr. McLaughlin:

An Area of Review was performed in the vicinity of the 900 N-1H well per your instructions of an area perimeter of 500' of surface area and 1500' horizontal wellbore for open formations of other wells.

A search was conducted of the WV DEP's Resource Data Viewer, the DEP's Oil and Gas Database, West Virginia Copy online service, tax maps and HGE's mapping and well records systems. The search found twenty wells within the area of review. There are no wells within the review area which could be impacted by HGE drilling a well in the Huron shale. All wells identified are shallow wells drilled to the Salt Sand and two wells drilled to the Big Injun at 2000 feet.

Public notices have been placed in local papers in Ritchie, Calhoun and Wirt counties regarding HGE's intent to drill in this area. Additionally we will be sending letters to all Operators, (three), in the immediate, surrounding area to inform them of our intent to drill upon approval of the drilling permit.

If you have any questions regarding this Area of Review study, please call me at 304-420-1119.

Very truly yours,

*Diane C White*

Diane C. White

Enclosures

09/12/2014

WW - 2B  
(Rev. 8/10)

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
WELL WORK PERMIT APPLICATION

3      450

1) Well Operator: HG Energy, LLC      494497948      Ritchie      Murphy      Macfarlan 7.5'  
Operator ID      County      District      Quadrangle

2) Operator's Well Number: Hartley 900 N-1H      3) Elevation: 1116.5'

4) Well Type: (a) Oil X or Gas X  
(b) If Gas: Production X / Underground Storage \_\_\_\_\_  
Deep \_\_\_\_\_ / Shallow X

5) Proposed Target Formation(s): Huron      Proposed Target Depth: 3902' TVD

6) Proposed Total Depth: 10840' TMD Feet      Formation at Proposed Total Depth: Huron

7) Approximate fresh water strata depths: NA

8) Approximate salt water depths: NA

9) Approximate coal seam depths: NA

10) Approximate void depths, (coal, Karst, other): NA

11) Does land contain coal seams tributary to active mine? No

12) Describe proposed well work and fracturing methods in detail (attach additional sheets if needed)  
Drill and stimulate horizontal production well in the Huron shale

13) CASING AND TUBING PROGRAM

TYPE	SPECIFICATIONS			FOOTAGE INTERVALS		CEMENT
	Size	Grade	Weight per ft	For Drilling	Left in Well	Fill -up (Cu. Ft.)
Conductor	13 3/8"	LS	54.5#	40'	40'	Grout w/50sk
Fresh Water	9 5/8"	J-55	36#	400'	400'	200 cf - CTS
Coal						
Intermediate	7"	J-55	20#	2000'	2000'	400 cf - CTS
Production	4 1/2"	P-110	11.6#	10840'	10840'	RECEIVED See Below Office of Oil and Gas
Tubing						
Liners						AUG 21 2014

Packers: Kind: Packers Plus style system (Hydraulic Open Hole Packers)  
Sizes: Tool size: 5.75" to sit in 6 1/4" hole  
Depths Set TBD - Equally spaced from TMD to LP, upper packer set in vertical section of hole, below 7' shoe

WV Department of  
Environmental Protection

09/12/2014

*See*

STATE OF WEST VIRGINIA  
DIVISION OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
WELL WORK PERMIT APPLICATION

11) Proposed Well Work:

Drill and stimulate production well in the Huron shale.

For this well, we plan on running 4.5" production casing on a "Packer Plus" style system. These packers are hydraulically set, open hole packers, (thus, this casing will not be cemented, the packers are set to isolate the frac within the zone of interest). We plan to do 30 stages within the planned approximate 6000' lateral. We plan to run 1 "safety" packer in the vertical portion of the well to serve as additional protection/isolation on the annulus. We plan to frac each stage with approximately 1mmscf per stage of N2 (100% Nitrogen).

WW-2A  
(Rev. 6-14)

1.) Date: August 18, 2014  
2.) Operator's Well Number Hartley 900 N-1H  
State County Permit  
3.) API Well No.: 47- Ritchie

STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
NOTICE AND APPLICATION FOR A WELL WORK PERMIT

4) Surface Owner(s) to be served:  
(a) Name Heartwood Forestland Fund IV  
Address 301 Emerson Avenue  
Parkersburg, WV 26104  
(b) Name \_\_\_\_\_  
Address \_\_\_\_\_  
(c) Name \_\_\_\_\_  
Address \_\_\_\_\_  
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 David Cowan  
Address 1597 Devil Hole Road  
Harrisville, WV 26362  
Telephone 304-389-3509

**TO THE PERSONS NAMED ABOVE TAKE NOTICE THAT:**

OR Included is the lease or leases or other continuing contract or contracts by which I hold the right to extract oil and gas

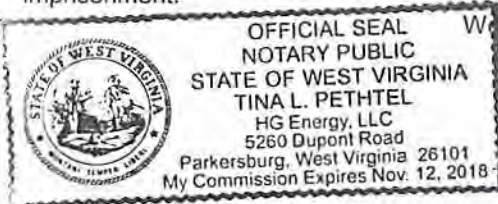
X Included is the information required by Chapter 22, Article 6, Section 8(d) of the Code of West Virginia (see page 2)  
I certify that as required under Chapter 22-6 of the West Virginia Code I have served copies of this notice and application, a location plat, and accompanying documents pages 1 through     on the above named parties by:

- Personal Service (Affidavit attached)
- X Certified Mail (Postmarked postal receipt attached)
- Publication (Notice of Publication attached)

I have read and understand Chapter 22-6 and 35 CSR 4, and I agree to the terms and conditions of any permit issued under this application.

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, 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 and imprisonment.



Well Operator: HG Energy, LLC  
By: Diane White *Diane White*  
Its: Accountant  
Address: 5260 Dupont Road  
Parkersburg, WV 26101  
Telephone: 304-420-1119  
Email: dwhite@hgenerqyllc.com

Subscribed and sworn before me this 18 day of AUGUST 2014 Office of Oil and Gas

My Commission Expires NOV. 12, 2018 Notary Public AUG 21 2014

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 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)

WV Department of Environmental Protection  
RECEIVED  
AUG 21 2014  
09/12/2014

851015814

5609 0589 2000 094E 2102

**U.S. Postal Service™**  
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For delivery information visit our website at [www.usps.com](http://www.usps.com)

PARKERSBURG WV 26104  
**OFFICIAL USE**

Postage	\$	\$1.61	0533
Certified Fee		\$3.30	06
Return Receipt Fee (Endorsement Required)		\$2.70	Postmark Here
Restricted Delivery Fee (Endorsement Required)		\$0.00	08/20/2014
<b>Total Postage &amp; Fees</b>	<b>\$</b>	<b>\$7.61</b>	Hartley 900 MH

WILLIAMSTOWN WV 26187  
 08/20/2014  
 Hartley 900 MH

Sent To: Heartwood Forestland Fund IV  
 Street, Apt. No.; or PO Box No. 301 Emerson Ave  
 City, State, ZIP+4 Parkersburg WV 26104

PS Form 3800, August 2006 See Reverse for Instructions

09/12/2014

WW-2B1  
(5-12)

Well No. Hartley 900 N-1H

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.

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

Listed below is the laboratory chosen by operator to perform analysis, and contactor chosen to collect sample.

Certified Laboratory Name	<u>Sturm Environmental</u>
Sampling Contractor	<u>Sturm Environmental</u>

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

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 underling which one you have selected to sample and analyze. If there are no water wells or springs within 1000 feet of the proposed site, the Chief may require the operator to test wells up to 2000 feet from the proposed site.

\* Closest water source about 2500' from proposed site, water being tested.

Terry & Alverda Wilson  
86 Pleasant Ridge Road  
Brohard WV 26138

09/12/2014



WW-2A1  
(Rev. 1/11)

Operator's Well Number Hartley 900 N-1H

**INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE  
Chapter 22, Article 6, Section 8(d)  
IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)**

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page
Francis E. Cain	HG Energy, LLC	1/8	257/665

**Acknowledgement of Possible Permitting/Approval  
In Addition to the Office of Oil and Gas**

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources
- WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the proposed activity is initiated.

Well Operator:  
By: Its:

Diane White  
HG Energy, LLC  
Diane White, Accountant

AUG 21 2014

RECEIVED  
Office of Oil and Gas  
WV Department of  
Environmental Protection

09/12/2014

WW-9  
(5/13)

Page \_\_\_\_\_ of \_\_\_\_\_  
API Number 47 - \_\_\_\_\_ - \_\_\_\_\_  
Operator's Well No. Hardley 900 N-1H

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

FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name HG Energy, LLC OP Code 494497948

Watershed (HUC 10) Laurel Run Quadrangle Macfarlan 7.5'

Elevation 1116.5' County Ritchie District Murphy

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 encountered in drilling shallow 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. Air

-If oil based, what type? Synthetic, petroleum, etc.

Additives to be used in drilling medium? Water, soap, KCl

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 White

Company Official Title Accountant

RECEIVED  
Office of Oil and Gas

AUG 21 2014

Subscribed and sworn before me this 18 day of AUGUST

[Signature]

My commission expires Nov 12, 2018



Form WW-9

Operator's Well No. Hartley 900 N-1H

Proposed Revegetation Treatment: Acres Disturbed 2.2 Prevegetation pH 6.0

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

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: press & mulch all cut area no less than 2 ton per acre maintain at pH 5.5 during operations

Title: oil & gas inspector Date: 8-20-14

Field Reviewed?  Yes  No

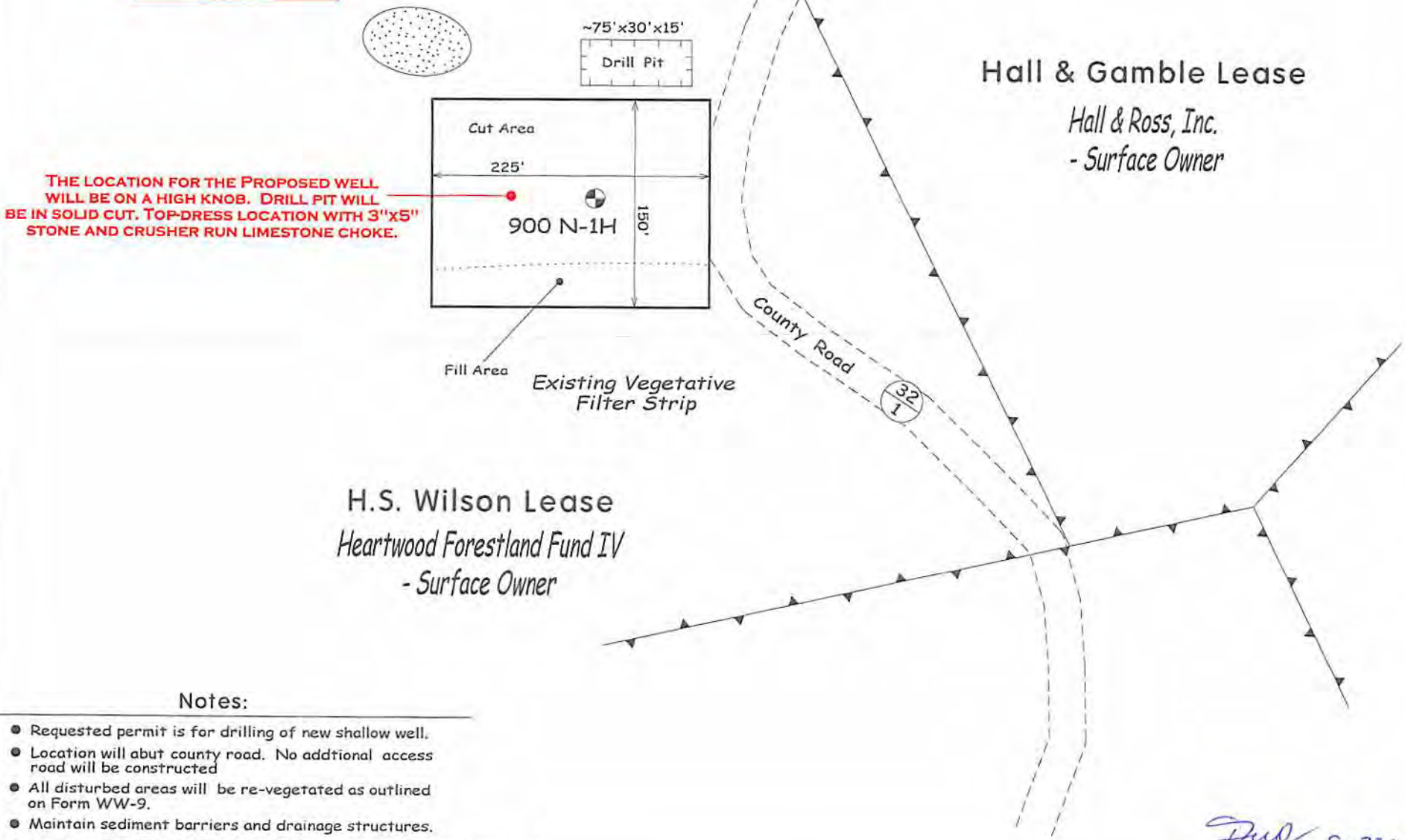
RECEIVED  
Office of Oil and Gas

AUG 21 2014

WV Department of  
Environmental Protection 09/12/2014

# Reclamation Plan For: Hartley Unit 900 N-1H

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



THE LOCATION FOR THE PROPOSED WELL  
WILL BE ON A HIGH KNOB. DRILL PIT WILL  
BE IN SOLID CUT. TOP-DRESS LOCATION WITH 3"x5"  
STONE AND CRUSHER RUN LIMESTONE CHOKE.

H.S. Wilson Lease  
Heartwood Forestland Fund IV  
- Surface Owner

Hall & Gamble Lease  
Hall & Ross, Inc.  
- Surface Owner

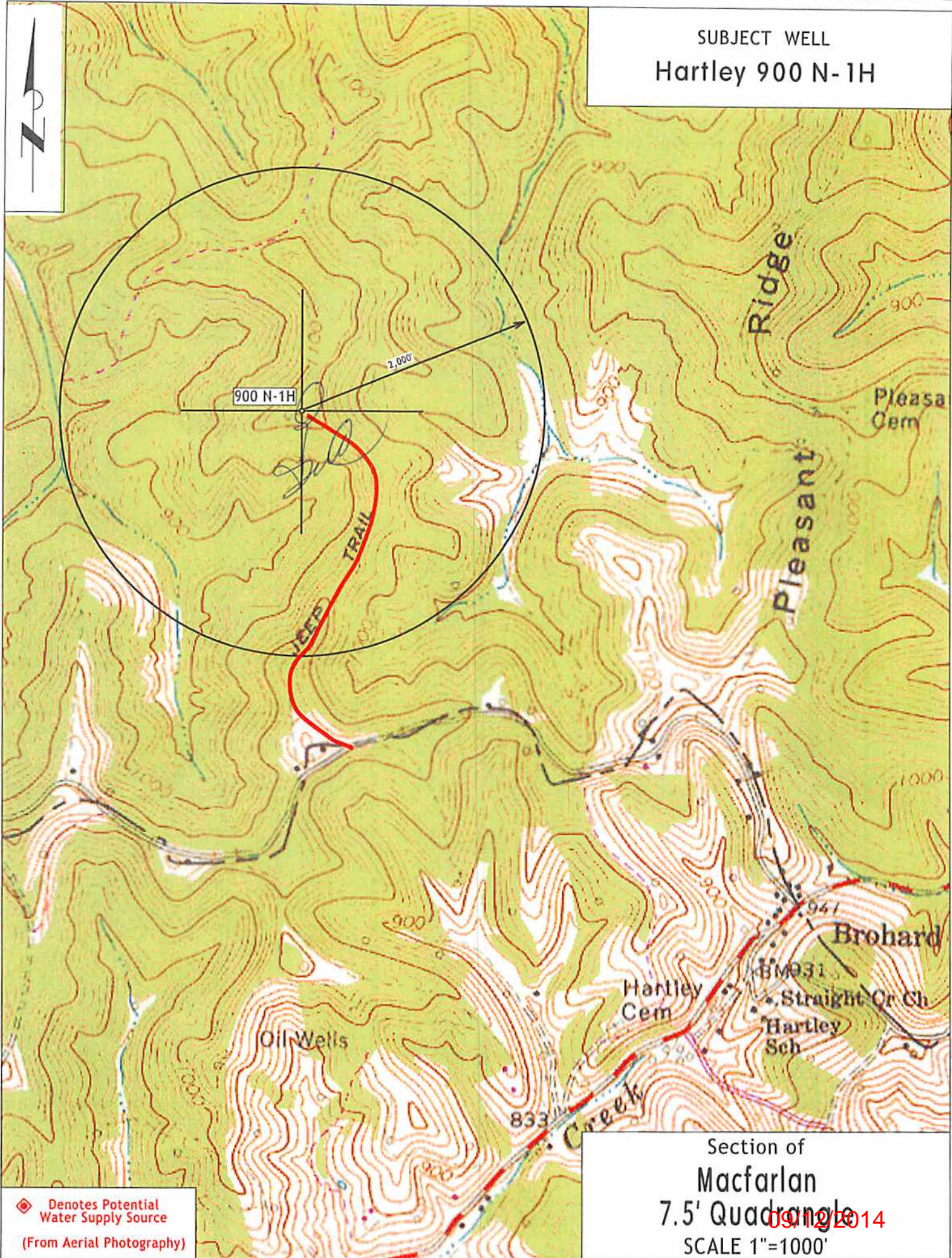
**Notes:**

- Requested permit is for drilling of new shallow well.
- Location will abut county road. No additional access road will be constructed
- All disturbed areas will be re-vegetated as outlined on Form WW-9.
- Maintain sediment barriers and drainage structures.
- Location drill pit may be changed based on as-built considerations.

*Dul* 8-20-14  
Note: Drawing not to Scale

85101584

SUBJECT WELL  
Hartley 900 N-1H



◆ Denotes Potential  
Water Supply Source  
(From Aerial Photography)

Section of  
Macfarlan  
7.5' Quadrangle  
09/12/2014  
SCALE 1"=1000'

(BOTTOM HOLE: 81°12'32.5") LON: -81°11'28.4"

6975'

**SURVEY NOTES**

1 - Well ties and Latitude and Longitude were measured by DGPS (Sub-meter Mapping Grade). Bearings are referenced to UTM Grid North (Zone 17 North - NAD 1927).

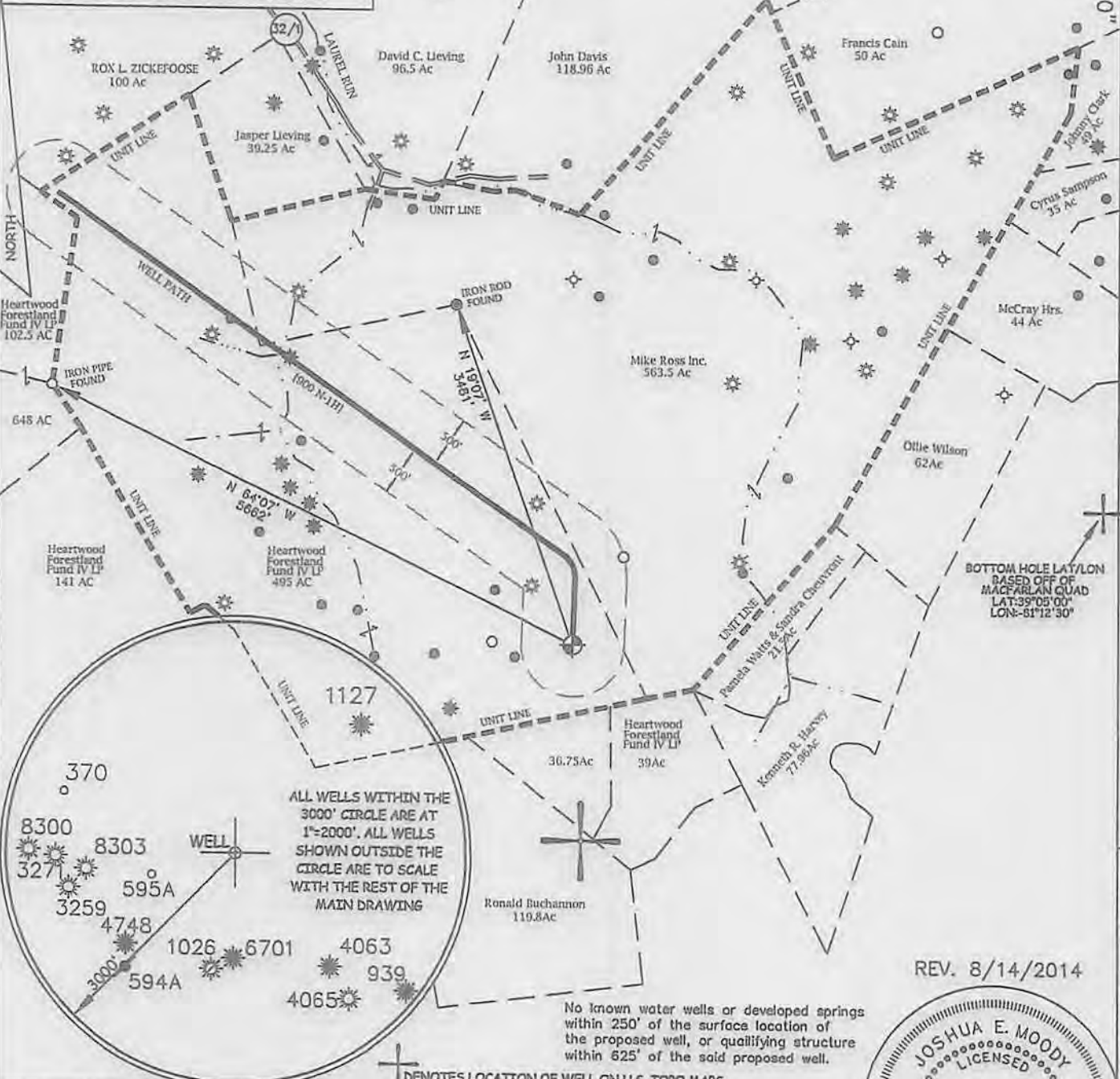
2 - Surface owners and adjoiners information obtained from the Ritchie County Assessor's tax records.

3 - No Title Opinion was provided to the Surveyor during this survey. This survey is subject to a complete title Opinion.

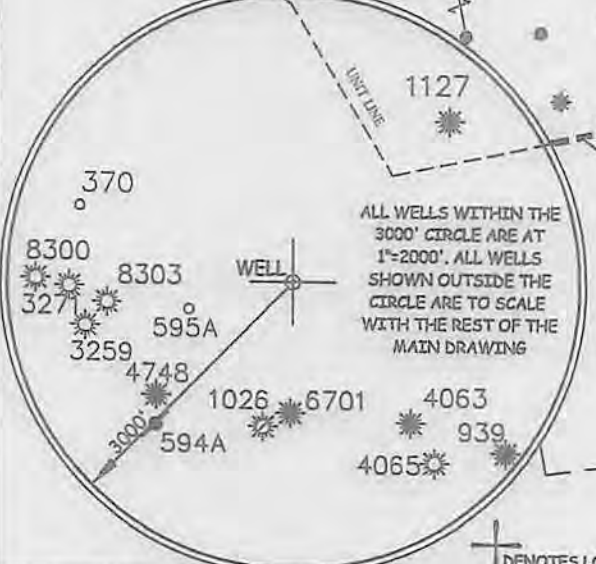
4 - Existing well spots from HGE or Seneca Tech, Inc. data

UTM Coordinates (Zone 17N-NAD 1983)		LOCATION REFERENCES	
Surface	N-4,322,077m. E-483,466m.	UTM 27	S 81°36' W 358' SPIKE S 62°22' E 516' SPIKE
Bottom Hole	N-4,323,400m. E-481,929m.		

LAT: 39°05'00"  
**MAP OF  
H.G. ENERGY, LLC  
-900 N-1H-**  
LON: 81°10'00"



BOTTOM HOLE LAT/LON  
BASED OFF OF  
MACFARLAN QUAD  
LAT: 39°05'00"  
LON: -81°12'30"



No known water wells or developed springs within 250' of the surface location of the proposed well, or qualifying structure within 625' of the said proposed well.

+ DENOTES LOCATION OF WELL ON U.S. TOPO MAPS.

REV. 8/14/2014



JOB # 14-011  
DRAWING # 04/02/2014/rev/140101/140102/140103  
SCALE 1" = 1500'  
MINIMUM DEGREE OF ACCURACY SUB-METER  
PROVEN SOURCE OF ELEV. SUBMETER MAPPING GRADE GPS

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 PERSCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.



**WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**  
MOODY LAND SURVEYING, LLC  
ST. MARYS, WV 26170

JOSHUA E. MOODY, P.S. 2020  
DATE 07/28/2014  
OPERATOR'S WELL #900 N-1H

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION  
OFFICE OF OIL AND GAS

WELL TYPE: OIL  GAS  LIQUID INJECTION \_\_\_\_\_ WASTE DISPOSAL \_\_\_\_\_ HORIZONTAL   
(IF "GAS") PRODUCTION  STORAGE \_\_\_\_\_ DEEP \_\_\_\_\_ SHALLOW   
LOCATION: ELEVATION 1116.5' WATERSHED LAUREL RUN API WELL # \_\_\_\_\_  
DISTRICT MURPHY COUNTY RITCHIE 47 - 85 - 10158 H  
QUADRANGLE MACFARLAN 7.5' STATE COUNTY PERMIT

SURFACE OWNER HEARTWOOD FORESTLAND FUND IV LP ET AL. ACREAGE 495 ACRES +/-  
OIL & GAS ROYALTY OWNER FRANCIS CAIN ET AL. LEASE ACREAGE 1,139 ACRES +/-  
PROPOSED WORK: DRILL  CONVERT \_\_\_\_\_ DRILL DEEPER \_\_\_\_\_ REDRILL \_\_\_\_\_ FRACTURE OR \_\_\_\_\_  
STIMULATE  PLUG OFF OLD FORMATION \_\_\_\_\_ PERFORATE NEW FORMATION \_\_\_\_\_  
OTHER PHYSICAL CHANGE IN WELL (SPECIFY) \_\_\_\_\_  
PLUG & ABANDON \_\_\_\_\_ CLEAN OUT & REPLUG \_\_\_\_\_  
TARGET FORMATION HURON ESTIMATED DEPTH TVD= 3,902' MD= 10,840'  
WELL OPERATOR H.G. ENERGY, LLC DESIGNATED AGENT MIKE KIRSCH  
ADDRESS 5260 DuPONT ROAD ADDRESS 5260 DuPONT ROAD  
PARKERSBURG, WV 26101 PARKERSBURG, WV 26101

FORM WW-6 LEASE # SC 109

LAT: 39°02'51.1" (BOTTOM HOLE: 39°03'33.9")