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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 04, 2014

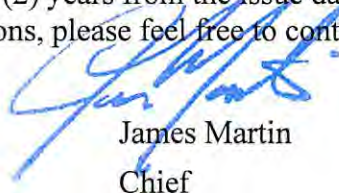
**WELL WORK PERMIT**  
**Secondary Recovery Well**

This permit, API Well Number: 47-3305810, 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: J.N. FURNO NO. 152  
Farm Name: MUTSCHELKNAUS, CLARENCE  
**API Well Number: 47-3305810**  
**Permit Type: Secondary Recovery Well**  
Date Issued: 02/04/2014

## 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.

33058105

WW-3B  
10/07



1) Date December 4, 2013  
 2) Operator's Well No. J. N. Furno No. 152  
 3) API Well No. 47 - 033 -  
                                 State County Permit  
 4) UIC Permit No. UIC2R03301AP

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 1338' Watershed Ten Mile Creek  
 District Tennile 09 County Harrison 33 Quadrangle Salem 7.5' 596
- 7) WELL OPERATOR: HG Energy, LLC 494497948 8) DESIGNATED AGENT: Mike Kirsch  
5260 Dupont Road 5260 Dupont Road  
Parkersburg, WV 26101 Parkersburg, WV 26101
- 9) OIL & GAS INSPECTOR TO BE NOTIFIED: 10) DRILLING CONTRACTOR:  
 Name Sam Ward Name \_\_\_\_\_  
 Address P. O. Box 2327 Address \_\_\_\_\_  
Buckhannon, WV 26201
- 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 Fifth Sand Depth 3,265 Ft. (Top) to 3,276 Ft. (Bottom)
- 13) Estimated depth of completed well (or actual depth of existing well) 3385' TMD Ft.
- 14) Approximate water strata depths: Fresh 250 Ft. Salt 1,450 Ft.
- 15) Approximate coal seam depths: 692 Ft.
- 16) Is coal being mined in the area? Yes \_\_\_\_\_ No
- 17) Virgin reservoir pressure in target formation: 1,250 psig. Source Estimated
- 18) Estimated reservoir fracture pressure: 2,650 psig.
- 19) MAXIMUM PROPOSED INJECTION OPERATIONS: Volume per hour 25 BBL Bottom Hole Pressure 2,400 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 \_\_\_\_\_

SDW  
12/23/2013  
MAG

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	7"	L.S.	17#	X		770'	770'	Cement to Surface	Tension
Coal									Sizes
Intermediate									2.375" x 4.5"
Production	4 1/2"	J-55	10.5#	X		3,385	3385'	150 sacks	Depths Set
Tubing	2 3/8"	J-55	4.6 #	X		3185'	3185'		3085'
Liners									Perforations
									Top Bottom

24) APPLICANTS OPERATING RIGHTS were acquired from John H. Furner et ux  
 by Deed \_\_\_\_\_ Lease  Other Contract \_\_\_\_\_ Dated June 13, 1916 of record in the  
Harrison County Clerk's Office in Book 260 at Page 62 Section 102

02/07/2014

WW-3A  
10/07



1) Date: December 4, 2013  
2) Operator's Well No. J. N. Furno No. 152  
3) API Well No. 47 033 -  
State County Permit  
4) UIC Permit No. UIC2R03301AP

CK  
24 7200  
WSD

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) Surface Owner(s) To Be Served  
(a) Name Clarence & Mary Mutschelknaus ✓  
Address 170 E Main Street  
Salem, WV 26426  
(b) Name Edgar Lee Myers ✓  
Address RR 4, Box 532  
Salem, WV 26426  
(c) Name \_\_\_\_\_  
Address \_\_\_\_\_  
6) Inspector Sam Ward  
Address P. O. Box 2327  
Buckhannon, WV 26201  
Telephone 389-7583

7 (a) Coal Operator  
Name NA  
Address \_\_\_\_\_  
7 (b) Coal Owner(s) With Declaration Of Record  
Name NA  
Address \_\_\_\_\_  
Name \_\_\_\_\_  
Address \_\_\_\_\_  
7(c) Coal Lessee With Declaration Of Record  
Wolf Run Mining Co. ✓  
2708 Cranberry Square  
Morgantown, WV 26505

TO THE PERSON(S) NAMED ABOVE: You should have received this form and the following documents:

- (1) The Application for a Liquid Injection or Waste Disposal Well Work Permit on Form WW-3(B), which sets out the parties involved in the drilling or other work;
- (2) The plat (surveyor's map) showing the well location on Form WW-6; and
- (3) The Construction and Reclamation Plan on Form WW-9 (unless the well work is only to plug a well), which sets out the plan for erosion and sediment control and for reclamation for the site and access road.

The date proposed for the first injection or waste disposal is To be determined

THE REASON YOU RECEIVED THESE DOCUMENTS IS THAT YOU HAVE RIGHTS REGARDING THE APPLICATION WHICH ARE SUMMARIZED IN THE "INSTRUCTIONS" ON FORM WW-3(A) DESIGNATED TO YOU. 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 Well Work Permit with the Chief of the Office of Oil and Gas, West Virginia Department of Environmental Protection, with respect to a well at the location described on the attached Application and depicted on the attached Form WW-6. Copies of this Notice, the Application, the plat, and the Construction and Reclamation Plan 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 the mailing or delivery to the Chief.

The person signing this document shall make the following certification:

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document 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  
Address 5260 Dupont Road  
Parkersburg, WV 26101  
By: Diane C. White  
Its: Accountant  
Signature Diane C White

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 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)

WW-2B1

Well No. J. N. Furno No. 152

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:

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 1000' of proposed well but many water sources have been tested in conjunction with this Wolf Summit drilling program**

Earl & Belva Junkins RR 5, Box 1226 Salem, WV 26426	Brian Huffman RR 4, Box 530 Salem, WV 26426	Susan Junkins RR 2, Box 119A Bristol, WV 26426	Gary Winters & Ruth Kennedy RR 2, Box 119 Bristol, WV 26426	Claude & Jean Tetric RR 2, Box 40 Bristol, WV 26426
John & Brenda Scotchie RR 2, Box 42 Salem, WV 26426	Linda Smith 9046 Westville Drive Camden Wyoming, DE 19934	Dennis McAvey RR 2, Box 41 Bristol, WV 26332	Mazza Donna Devericks RR 2, Box 80 Bristol, WV 26332	

Additional testing authorized on 5/13/2013:

Oville Myers RR 4, Box 531 Salem, WV 26426	Daniel Southern RR 4, Box 540 Salem, WV 26426	Edgar Lee Myers RR 4, Box 532 Salem, WV 26426	Edith Jean Myers RR 4, Box 534 Salem, WV 26426
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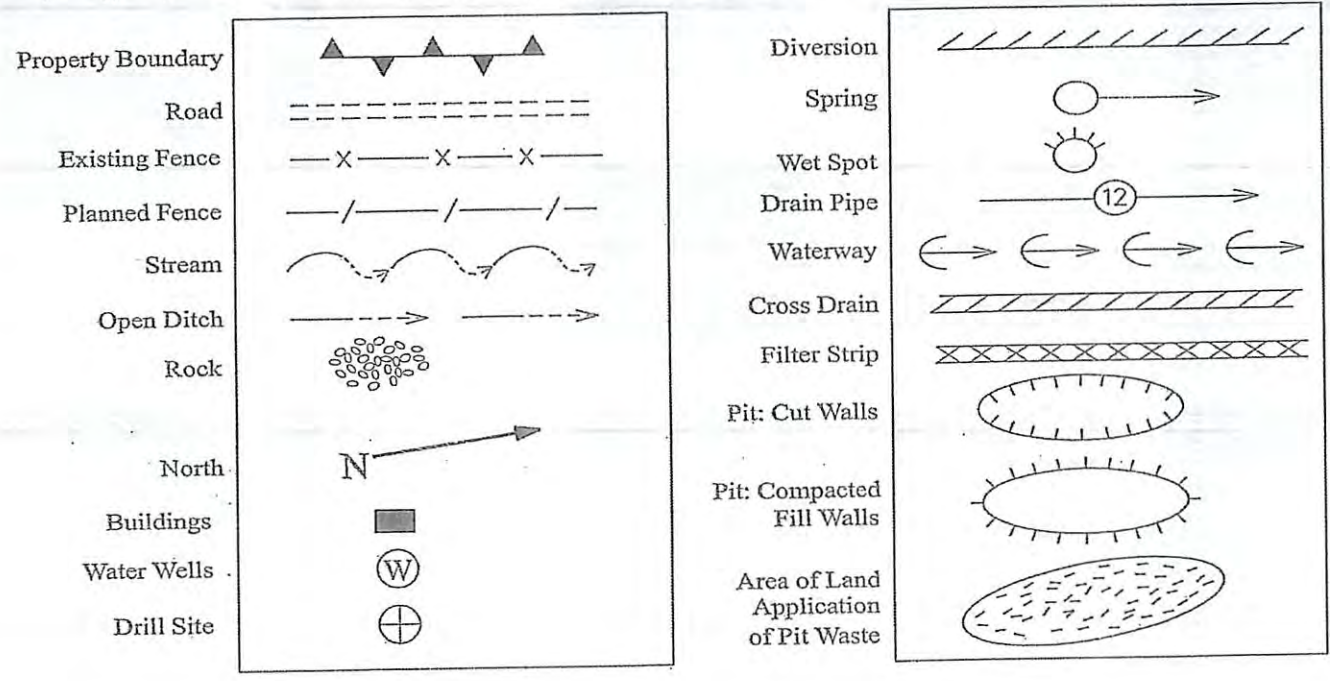
Office of Oil and Gas

Department of Environmental Protection

02/07/2014



Legend



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

Area II Approx. 1.0 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

Received  
 JAN - 3 2014

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

Office of Oil and Gas  
 Dept. of Environmental Protection

Plan approved by: S. D. Warratt M. W. Dept. of A. Huff

Comments: Pre-seed/mulch all disturbed areas as soon as reasonably possible per WU DEP ETS manual. Upgrade ETS as necessary

Title: Oil & Gas Inspector Date: 12/23/2013

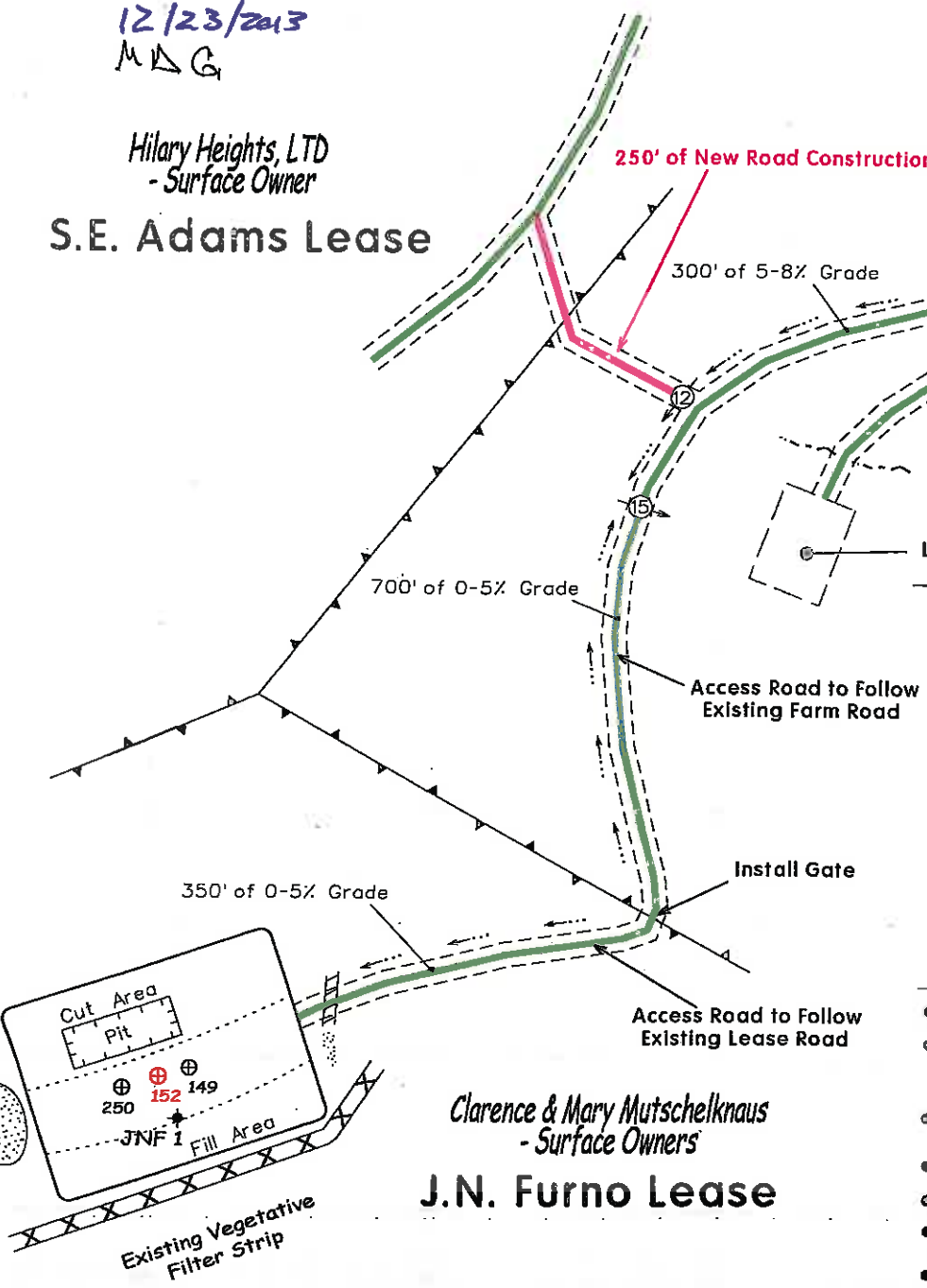
Field Reviewed?  Yes  No

# Reclamation Plan For: J.N. Furno No. 152

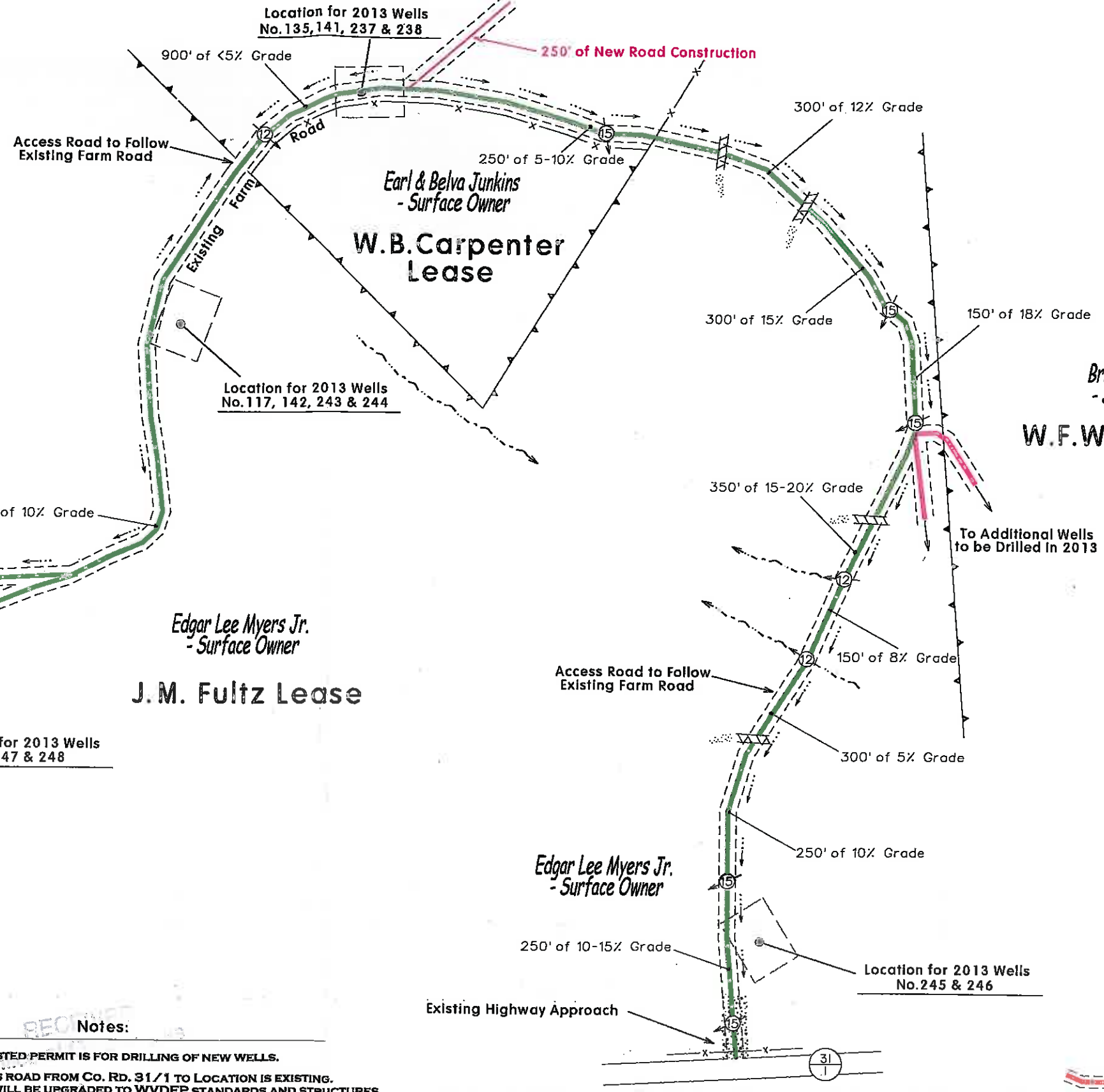
**NOTE**  
REFER TO THE WVDEP  
EROSION AND SEDIMENT CONTROL  
FIELD MANUAL VER. MAY 2012 FOR  
BMPs CONTROLLING EROSION AND  
SEDIMENT FROM SOIL-DISTURBING  
OPERATIONS.

SDW  
12/23/2013  
MAG

Hilary Heights, LTD  
- Surface Owner  
S.E. Adams Lease



Clarence & Mary Mutschelknaus  
- Surface Owners  
J.N. Furno Lease



Brian V. Huffman  
- Surface Owner  
W.F. Williams Lease

Edgar Lee Myers Jr.  
- Surface Owner  
J.M. Fultz Lease

Earl & Belva Junkins  
- Surface Owner  
W.B. Carpenter Lease

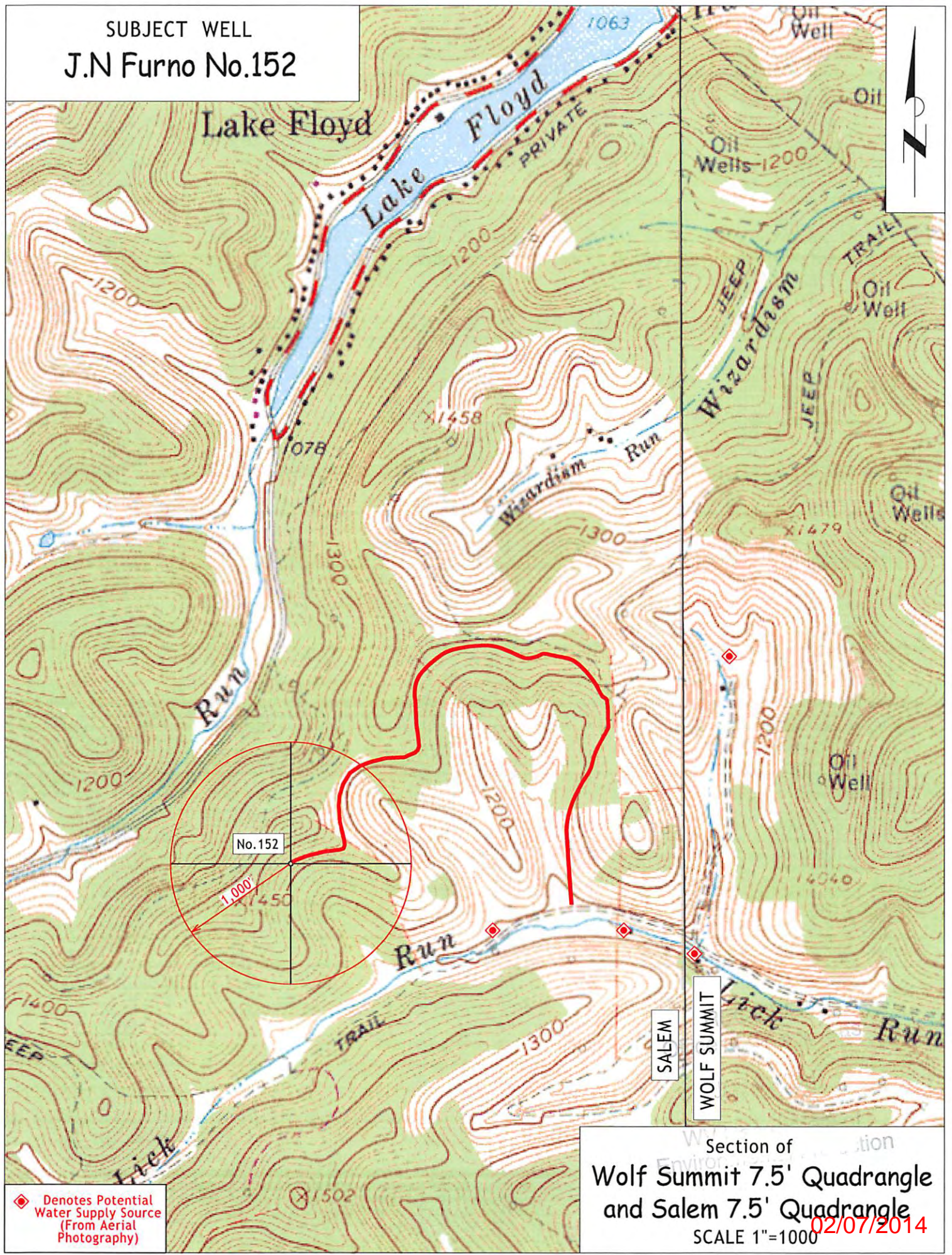
- Notes:**
- REQUESTED PERMIT IS FOR DRILLING OF NEW WELLS.
  - ACCESS ROAD FROM Co. Rd. 31/1 TO LOCATION IS EXISTING. ROAD WILL BE UPGRADED TO WVDEP STANDARDS AND STRUCTURES INSTALLED AS SHOWN.
  - ALL DISTURBED AREAS WILL BE RE-VEGETATED AS OUTLINED ON FORM WW-9.
  - MAINTAIN SEDIMENT BARRIERS AND DRAINAGE STRUCTURES.
  - ALL ROAD GRADES <5% EXCEPT AS NOTED.
  - LOCATION OF DRILL PIT MAY BE CHANGED BASED ON AS-BUILT CONSIDERATIONS.
  - DRAWING NOT TO SCALE.



02/07/2014



SUBJECT WELL  
J.N Furno No.152



◆ Denotes Potential Water Supply Source (From Aerial Photography)

Section of  
Wolf Summit 7.5' Quadrangle  
and Salem 7.5' Quadrangle  
SCALE 1"=1000  
02/07/2014

(BOT. HL: LON:-80°30'44.2") LON:-80°30'41.2"

3245

**SURVEY NOTES**

1 - Well ties and Latitude and Longitude were measured by Topcon Hiper GA survey grade GPS. Bearings are referenced to UTM Grid North (Zone 17 North - NAD 1927).

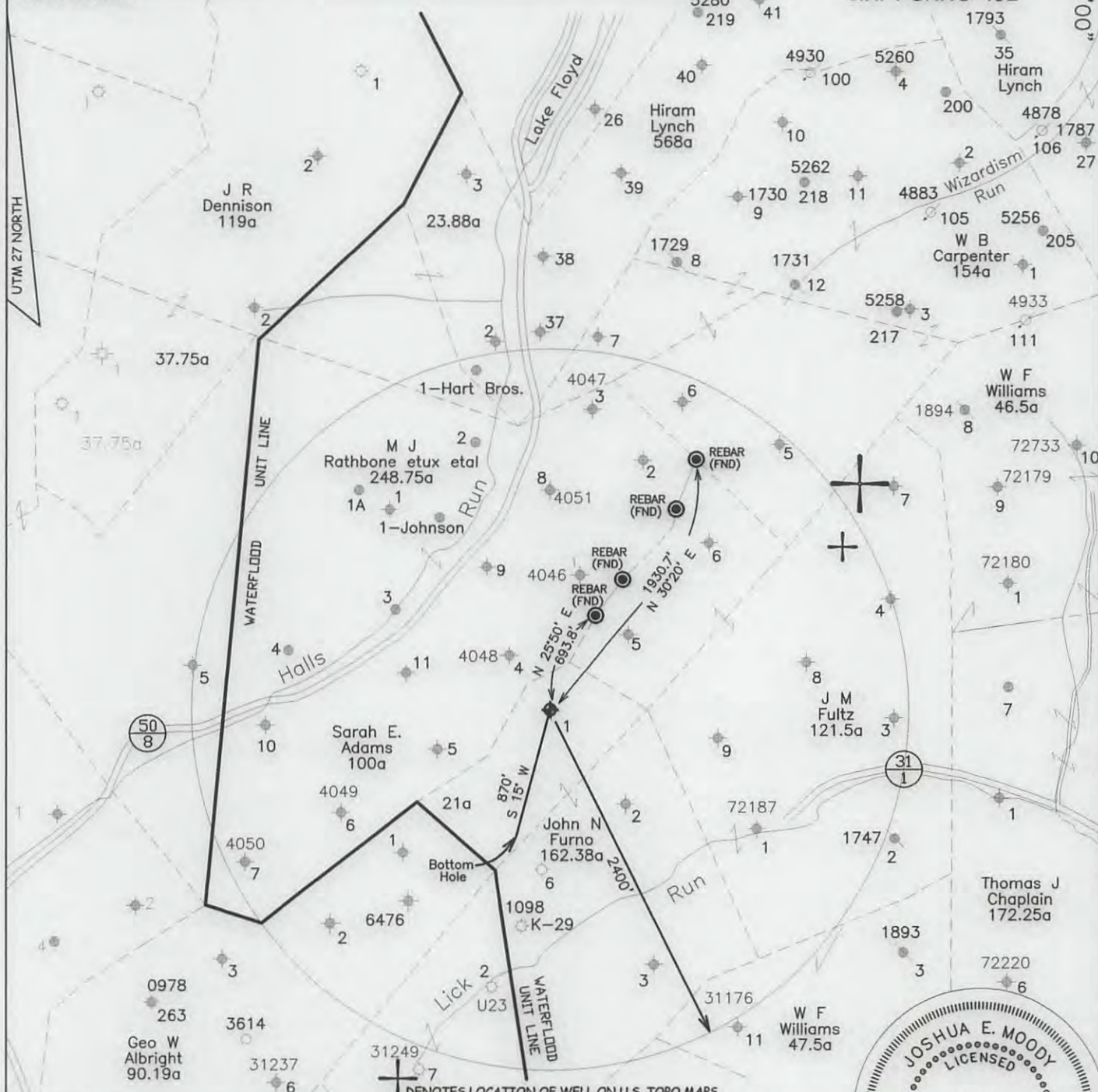
2 - Surface owners, adjoiners information, Lease names, & line mapping obtained from HGE GIS system.

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

UTM Coordinates (Zone 17N-NAD 1983)		LOCATION REFERENCES	
Surface	N-4,346,767m. E-542,159m.	UTM 27 S 34°50' E 13.7' 4" PVC WELL N 09°30' W 106.0' 9" HICKORY	
Bottom Hole	N-4,346,511m. E-542,090m.	Brg. Direction is prop. well to the ref.	

LAT: 39°17'30"  
**MAP OF**  
**H.G. ENERGY, LLC**  
**-WATERFLOOD UNIT-**  
**J.N. FURNO 152**

LON: 80°30'00"  
 8210  
 LAT:39°16'08.9"  
 (BOTTOM HOLE: LAT:39°16'00.6")



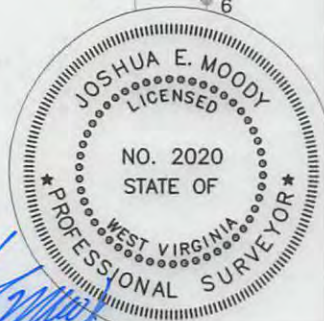
✚ DENOTES LOCATION OF WELL ON U.S. TOPO MAPS.

JOB # 13-014  
 DRAWING # 13LAKEFLOYD FOLDER  
 SCALE 1" = 1500'  
 MINIMUM DEGREE OF ACCURACY 1/2500  
 PROVEN SOURCE OF ELEV. BENCH MARK H-80

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 9/17/13  
 OPERATOR'S WELL  
 J.N. FURNO # 152

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 1338' WATERSHED TEN MILE CREEK API WELL # 47-033-05810S  
 DISTRICT TEN MILE COUNTY HARRISON STATE 47 COUNTY 033 PERMIT 05810S  
 QUADRANGLE SALEM 7.5'

SURFACE OWNER CLARENCE & MARY MUTSCHELKNAUS ACREAGE 157.94 ACRES +/-  
 OIL & GAS ROYALTY OWNER JOHN H. FURNER, et al LEASE ACREAGE 185 ACRES +/-  
 PROPOSED WORK: DRILL  CONVERT  DRILL DEEPER  REDRILL  FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION  PERFORATE NEW FORMATION   
 OTHER PHYSICAL CHANGE IN WELL (SPECIFY) WILL BE DRILLED DIRECTIONALLY (S 15° W 870')  
 PLUG & ABANDON  CLEAN OUT & REPLUG   
 TARGET FORMATION 5TH SAND ESTIMATED DEPTH MD= 3,385'  
 WELL OPERATOR H.G. ENERGY, LLC DESIGNATED AGENT MIKE KIRSCH  
 ADDRESS 5260 DuPONT ROAD ADDRESS 5260 DuPONT ROAD  
PARKERSBURG, WV 26101 PARKERSBURG, WV 26101

02/07/2014