



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

February 03, 2014

WELL WORK PERMIT
Secondary Recovery Well

This permit, API Well Number: 47-3305804, 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. 149
Farm Name: MUTSCHELKNAUS, CLARENCE
API Well Number: 47-3305804
Permit Type: Secondary Recovery Well
Date Issued: 02/03/2014

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

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.

WW-3B
10/07



1) Date December 4, 2013
 2) Operator's Well No. J. N. Furno No. 149
 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 Tenmile 09 County Harrison 33 Quadrangle Salem 7.5' 596
- 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 Sam Ward
 Address P. O. Box 2327
Buckhannon, WV 26201
- 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 Fifth Sand Depth 3,190 Ft. (Top) to 3,196 Ft. (Bottom)
- 13) Estimated depth of completed well (or actual depth of existing well) 3325' 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
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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		3,325	3325'	150 sacks	Depths Set
Tubing	2 3/8"	J-55	4.6 #	X		3125'	3125'		3025'
Liners									Perforations
									Top Bottom

24) APPLICANT'S 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

Received
 EJAN - 2014
 Office of Oil and Gas
 Department of Environmental Protection

CK 241
65200

WW-3A
10/07



1) Date: December 4, 2013

2) Operator's Well No. J. N. Furno No. 149

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) Surface Owner(s) To Be Served

(a) Name Clarence & Mary Mutschelknaus ✓
 Address 170 E Main Street
Salem, WV 26426

(b) Name Edgar Lee & Becky 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 _____

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

WW-2B1

Well No. J. N. Furno No. 149

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 Tetrick 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	

Office of Oil and Gas

JAN 30 2014

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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Division of Environmental Protection

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 Ten Mile Creek Quadrangle Salem 7.5'
Elevation 1338' County Harrison District Tenmile

Description of anticipated Pit Waste: Fluids encountered in drilling shallow 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:

- Land Application
- _____ Underground Injection (UIC Permit Number _____)
- _____ Reuse (at API Number _____)
- _____ Off Site Disposal (Supply Form WW-9 for disposal location)
- _____ Other (Explain _____)

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12/23/2013
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Drilling medium anticipated for this well? Air, fresh water, oil based, etc. Air, Fresh Water

- If oilbased, what type? Synthetic, petroleum, etc. NA

Additives to be used? Water, Soap, KCI

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. _____

- 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 C White
Company Official (Typed Name) Diane C. White
Company Official Title Accountant

Received

JAN - 2 2014

Subscribed and sworn before me this 4 day of December 2013

Tina L Pethel

My commission expires Nov 12, 2018

Office of Oil and Gas
WV Dept. of Environmental Protection

Notary Public

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
TINA L. PETHTEL
HG Energy, LLC
5260 Dupont Road
Parkersburg, West Virginia 26101
My Commission Expires Nov 2014

Legend

Property Boundary		Diversion	
Road		Spring	
Existing Fence		Wet Spot	
Planned Fence		Drain Pipe	
Stream		Waterway	
Open Ditch		Cross Drain	
Rock		Filter Strip	
North		Pit: Cut Walls	
Buildings		Pit: Compacted Fill Walls	
Water Wells		Area of Land Application of Pit Waste	
Drill Site			

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

Received

JAN - 2 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. P. Warditt Michael A. Raff

Comments: Pre-seed/mulch all disturbed areas as soon as reasonably possible per WV DEP EIS manual - Upgrade EIS as necessary

Title: Dild Gas Inspector Date: 12/23/2013

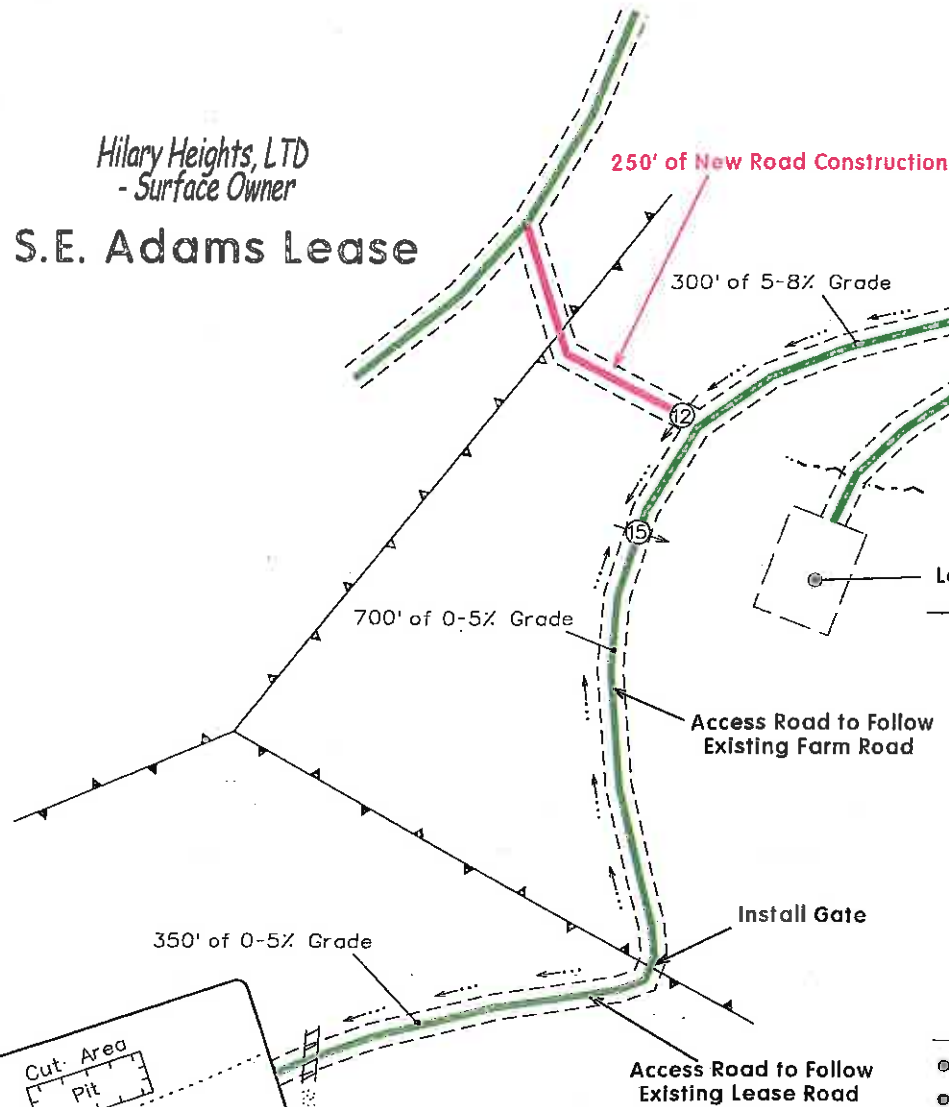
Field Reviewed? () Yes () No

Reclamation Plan For: J.N. Furno No. 149

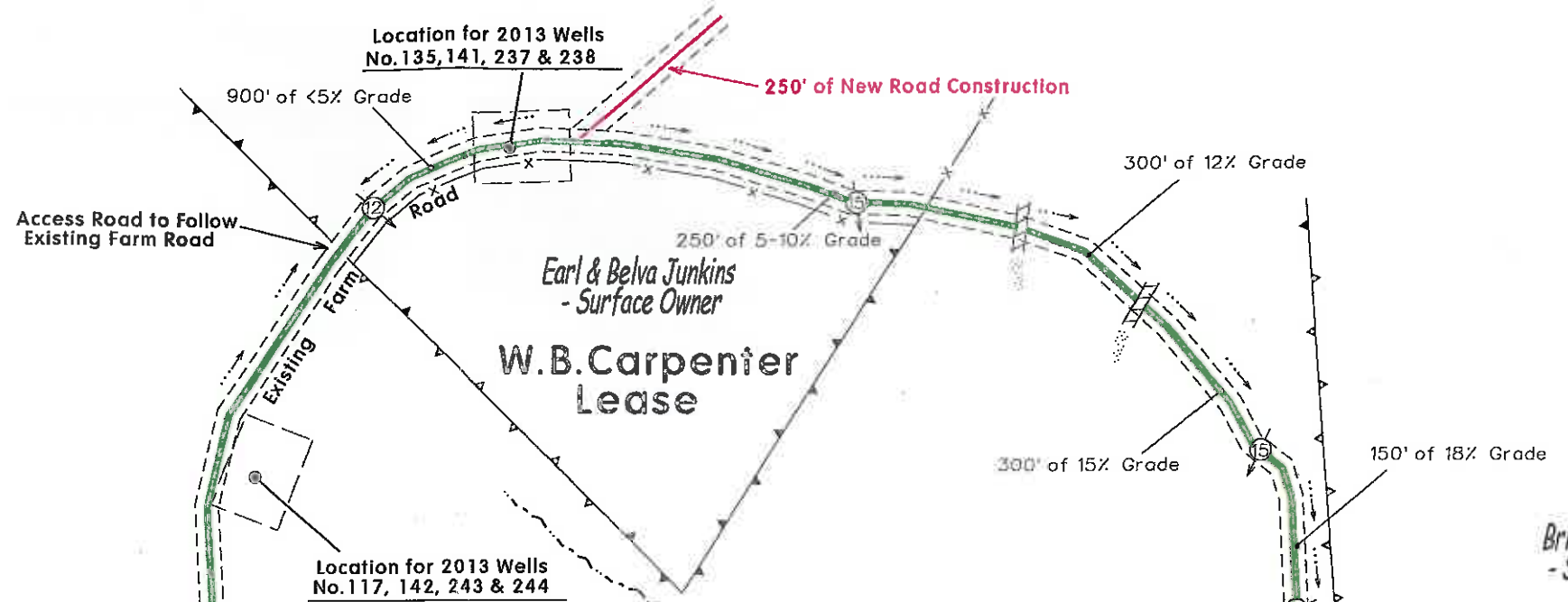
NOTE
REFER TO THE WVDEP
EROSION AND SEDIMENT CONTROL
FIELD MANUAL VER. MAY 2012 FOR
BMPs CONTROLLING EROSION AND
SEDIMENT FROM SOIL-DISTURBING
OPERATIONS.

SDW 12/23/2013
MAG

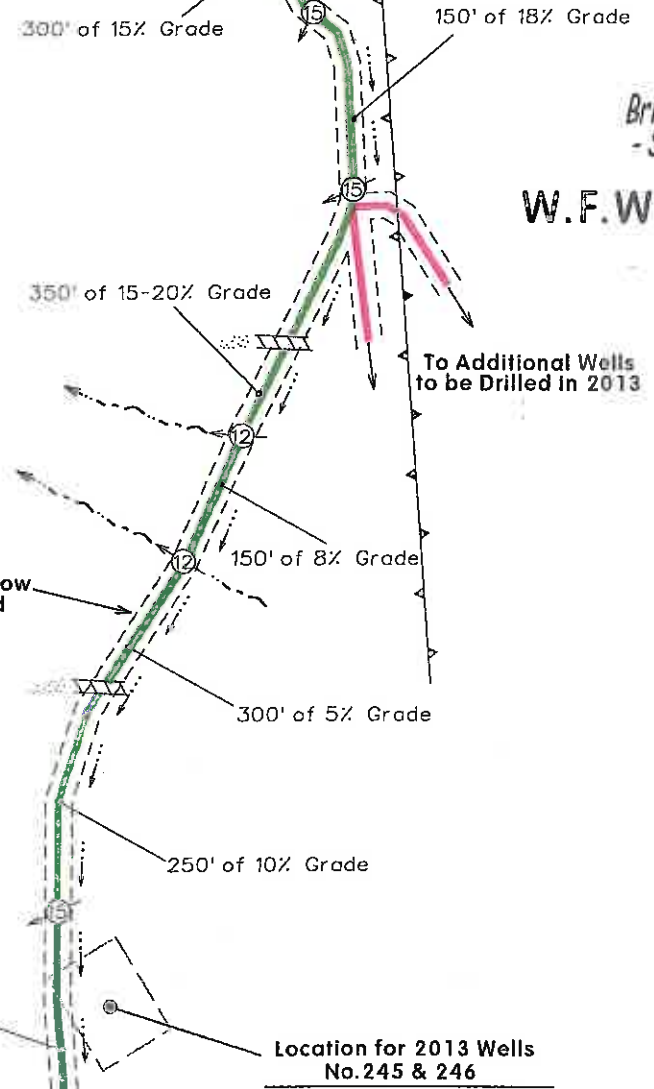
Hilary Heights, LTD
- Surface Owner
S.E. Adams Lease



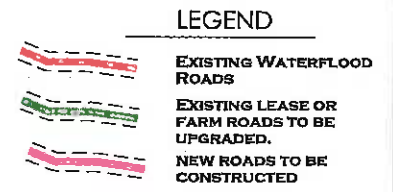
Clarence & Mary Mutschelknaus
- Surface Owners
J.N. Furno Lease



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

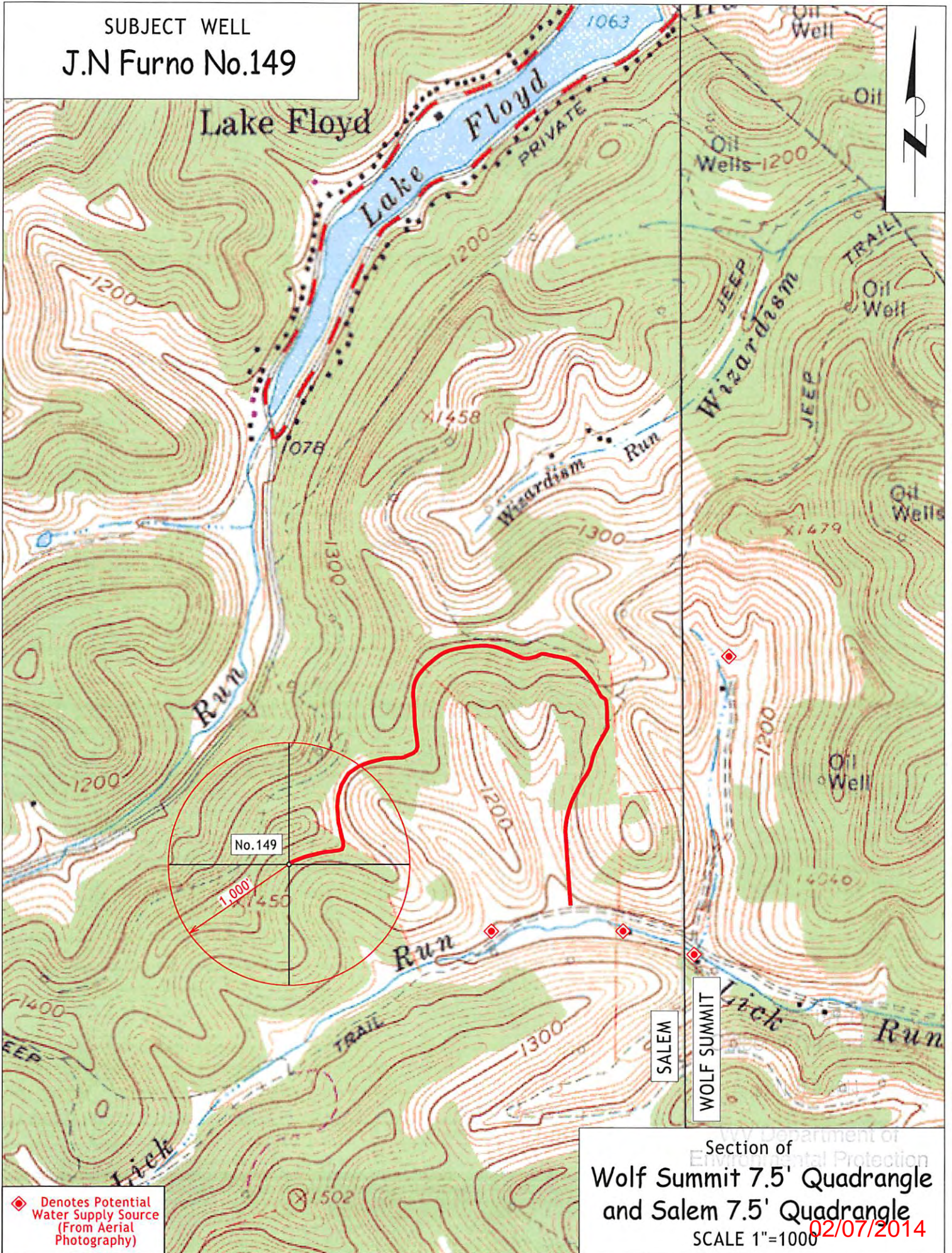


- Notes:**
- REQUESTED PERMIT IS FOR DRILLING OF NEW WELLS.
 - ACCESS ROAD FROM Co. Rd. 31/1 TO LOCATION IS EXISTING. ROAD WILL BE UPGRADED TO WVDEP STANDARDS AND STRUCTURES INSTALLED AS SHOWN.
 - ALL DISTURBED AREAS WILL BE RE-VEGETATED AS OUTLINED ON FORM WW-9.
 - MAINTAIN SEDIMENT BARRIERS AND DRAINAGE 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.149



◆ Denotes Potential Water Supply Source (From Aerial Photography)

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

(BOT. HL: LON:-80°30'34.2") LON:-80°30'41.1"

3230

SURVEY NOTES

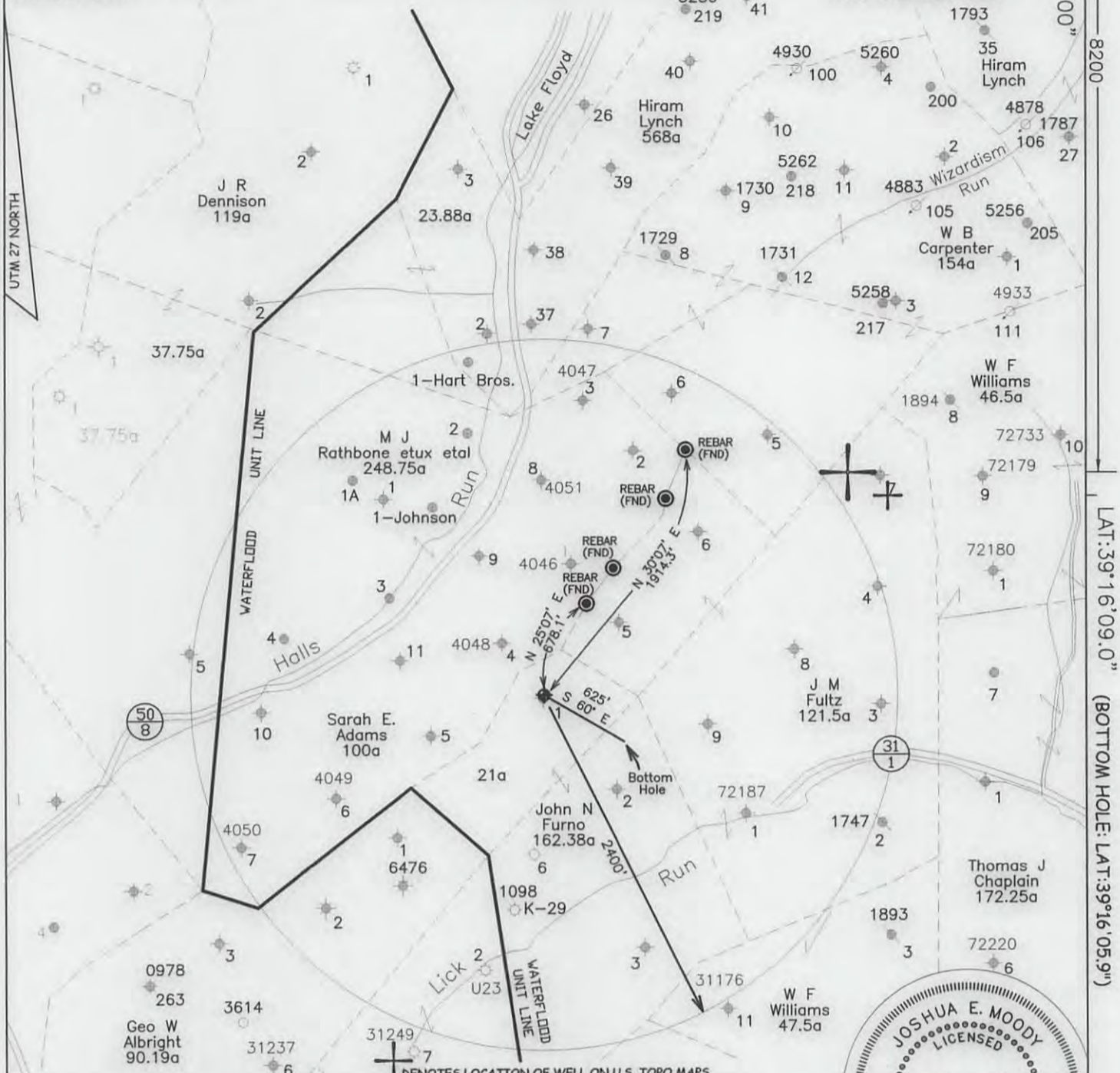
1 - Well ties and Latitude and Longitude were measured by Topcon Hiper GA survey grade GPS. Bearings are referenced to UTM Grid North (Zone 17 North - NAD 1927).

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-4,346,770m. E-542,163m.	UTM 27 S 17°00' W 22.8' 4" PVC WELL N 18°48' W 99.2' 9" HICKORY
Bottom Hole	N-4,346,675m. E-542,328m.	Brg. Direction is prop. well to the ref.

LAT: 39°17'30"
MAP OF
H.G. ENERGY, LLC
-WATERFLOOD UNIT-
J.N. FURNO 149



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 # 149

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL HORIZONTAL
 (IF "GAS") PRODUCTION STORAGE DEEP SHALLOW
 LOCATION: ELEVATION 1338' WATERSHED TEN MILE CREEK API WELL # 058045
 DISTRICT TEN MILE COUNTY HARRISON STATE 47 COUNTY 033 PERMIT 058045
 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 60° E 625')
 PLUG & ABANDON CLEAN OUT & REPLUG
 TARGET FORMATION 5TH SAND ESTIMATED DEPTH MD= 3,325'
 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