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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 13, 2015

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

This permit, API Well Number: 47-8704761, 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: E. SMITH 121  
Farm Name: CHADWELL, RONALD & BRENE  
**API Well Number: 47-8704761**  
**Permit Type: Secondary Recovery Well**  
Date Issued: 02/13/2015

## 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

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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 with 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. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced on this well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov within 30 days of commencement of drilling.



1) Date: 01/16/2015  
2) Operator's Well No. Elkannah Smith 121  
3) API Well No.: 47 - Roane - Permit  
State County  
4) UIC Permit No. UIC2R08704AP

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: 1148' Watershed: Laurel Fork  
District: Smithfield 5 County Roane Quadrangle Looneyville 7.5' 444  
7) WELL OPERATOR: HG Energy, LLC 8) DESIGNATED AGENT Diane White  
Address 5260 Dupont Road Address 5260 Dupont Road  
Parkersburg, WV 26101 Parkersburg, WV 26101  
9) OIL & GAS INSPECTOR TO BE NOTIFIED 10) DRILLING CONTRACTOR  
Name Ed Gainer Name To Be Determined Upon Approval of Permit  
Address P. O. Box 821 Address  
Spencer, WV 26201-2528 (304) 389-7582

11) PROPOSED WELL WORK Drill  / Drill deeper  / Redrill  / Stimulate   
Plug off old formation  / Perforate new formation  Convert   
Other physical change in well (specify)  
12) GEOLOGIC TARGET FORMATION Big Injun Depth 2170 Feet (top) to 2190 Feet (bottom)  
13) Estimated Depth of Completed Well, (or actual depth of existing well): 2270 TVD Feet  
14) Approximate water strata depths: Fresh 450 Feet Salt 1675 Feet  
15) Approximate coal seam depths: NA  
16) Is coal being mined in the area? Yes No   
17) Virgin reservoir pressure in target formation 1250 psig Source Estimated  
18) Estimated reservoir fracture pressure 2650 psig (BHFP)  
19) MAXIMUM PROPOSED INJECTION OPERATIONS: Volume per hour 25 BBL Bottom hole pressure 2400 psi  
20) DETAILED IDENTIFICATION OF MATERIALS TO BE INJECTED, INCLUDING ADDITIVES Fresh water, produced  
water, bactericides and other chemicals as needed to maintain water quality and improve oil recovery.  
21) FILTERS (IF ANY) Cartridge filters and/or coal bed filters  
22) SPECIFICATIONS FOR CATHODIC PROTECTION AND OTHER CORROSION CONTROL

23) CASING AND TUBING PROGRAM

CASING OR TUBING TYPE	SPECIFICATIONS					FOOTAGE INTERVALS		CEMENT FILL-UP OR SACKS (CU. FT.)	PACKERS
	Size	Grade	Weight per ft.	New	Used	For Drilling	Left In Well		
Conductor									Kinds
Fresh Water	7"	LS ST&C	17#			575'	575'	CTS	
Coal									Sizes
Intermediate									2.375" x 4.5"
Production	4 1/2"	J-55	10.5#			2230'	2230'	200 sks	Depths set
Tubing	2 3/8"	J-55	4.6#			2000'	2000'		1900'
Liners									Perforations
									Top Bottom

24) APPLICANT'S OPERATING RIGHTS were acquired from Elkannah, et ux  
by deed / lease  / other contract / dated 02/28/1906 of record in the  
Roane County Clerk's office in lease Received Book 8 Page 435

*[Signature]*  
1/20/15

Office of Oil & Gas  
JAN 22 2015

CK 2911  
\$ 650.00

FORM WW-3 (A)  
1/12



- 1) Date: January 16, 2015
- 2) Operator's Well No. Elkannah Smith 121
- 3) API Well No.: 47 -            -             
                                State                County                Permit
- 4) UIC Permit No. UIC2R08704AP

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

- |  |  |
|--|--|
| <p>5) Surface Owner(S) To Be Served</p> <p>(a) Name <u>Ronald &amp; Brenda Chadwell</u><br/>Address <u>4580 Clay Road</u><br/><u>Spencer, WV 25276</u></p> <p>(b) Name <u>Joseph Cottrell</u><br/>Address <u>89 Edgel Fork Road</u><br/><u>Spencer, WV 25276</u></p> <p>(c) Name <u>                                </u><br/>Address <u>                                </u></p> | <p>7) (a) Coal Operator<br/>Name <u>                                </u><br/>Address <u>                                </u></p> <p>7) (b) Coal Owner(S) With Declaration Of Record<br/>Name <u>                                </u><br/>Address <u>                                </u></p> <p>7) (c) Coal Lessee with Declaration Of Record<br/>Name <u>                                </u><br/>Address <u>                                </u></p> |
| <p>6) Inspector <u>Ed Gainer</u><br/>Address <u>P. O. Box 821</u><br/><u>Spencer, WV 25276</u><br/>Telephone <u>304-389-7582</u></p>   |  |

**TO THE PERSONS 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                                  20 15 .

THE REASON YOU HAVE RECEIVED THESE DOCUMENTS IS THAT YOU HAVE RIGHTS REGARDING THE APPLICATION WHICH ARE SUMMARIZED IN THE "INSTRUCTIONS" ON THE REVERSE SIDE OF THE COPY OF THE APPLICATION [(FORM WW-3(B))] DESIGNATED TO YOU. HOWEVER YOU ARE NOT REQUIRED TO TAKE 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 White  
Its: Agent  
Signature: *Diane White*

**Received**  
**Office of Oil & Gas**

**JAN 22 2015**

**02/13/2015**

WW-2B1  
(5-12)

Well No. Elkannah Smith 121

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 Sturm Environmental  
Sampling Contractor Sturm Environmental

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 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.

Surface Owners with Water Sources Identified for Sampling/Analysis:

- \* Ronald & Brenda Chadwell  
4580 Clay Road  
Spencer WV 25276
- \* Joseph Cottrell  
89 Edgel Fork  
Spencer WV 25276

Received  
Office of Oil & Gas  
JAN 22 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 Laurel Fork Quadrangle Looneyville 7.5'

Elevation 1148' County Roane District Smithfield

Description of anticipated Pit Waste: Fluids encountered while stimulating subject well

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

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

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection ( UIC Permit Number 25-561 )
- \_\_\_\_\_ Reuse (at API Number \_\_\_\_\_)
- \_\_\_\_\_ Off Site Disposal (Supply form WW-9 for disposal location)
- \_\_\_\_\_ Other (Explain \_\_\_\_\_)

Drilling medium anticipated for this well? Air, freshwater, oil based, etc. Air, Fresh Water

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

Additives to be used? Water, Soap, KCl

Will closed loop system be used? No

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

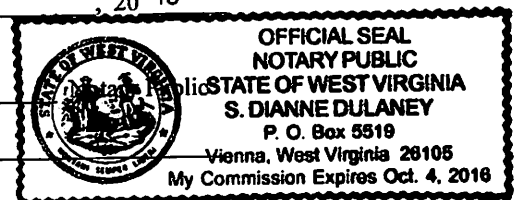
Company Official Title Agent

Received  
Office of Oil & Gas

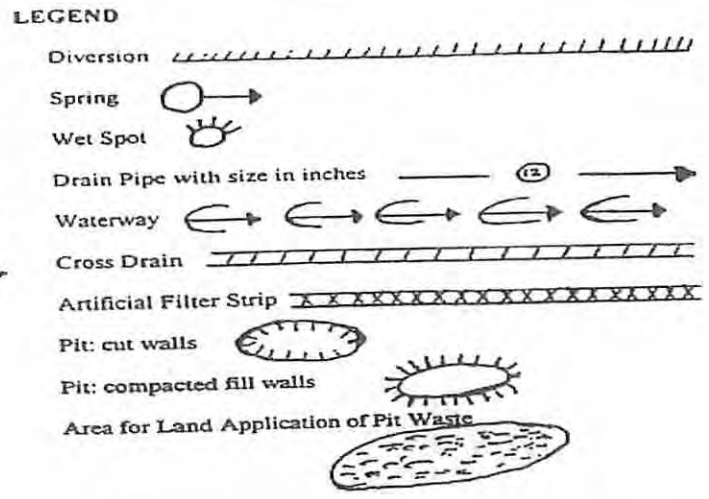
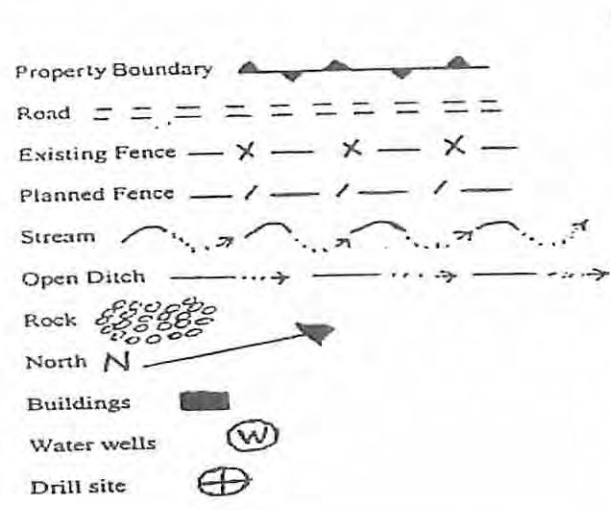
JAN 22 2015

Subscribed and sworn before me this 16th day of January, 20 15

[Signature]  
My commission expires Oct. 4, 2016



02/13/2015



Proposed Revegetation Treatment: Acres Disturbed 1.9 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

Proper 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: 

Comments: \_\_\_\_\_

Title: Inspector Date: 1/20/15

Field Reviewed?  (None) Yes  No

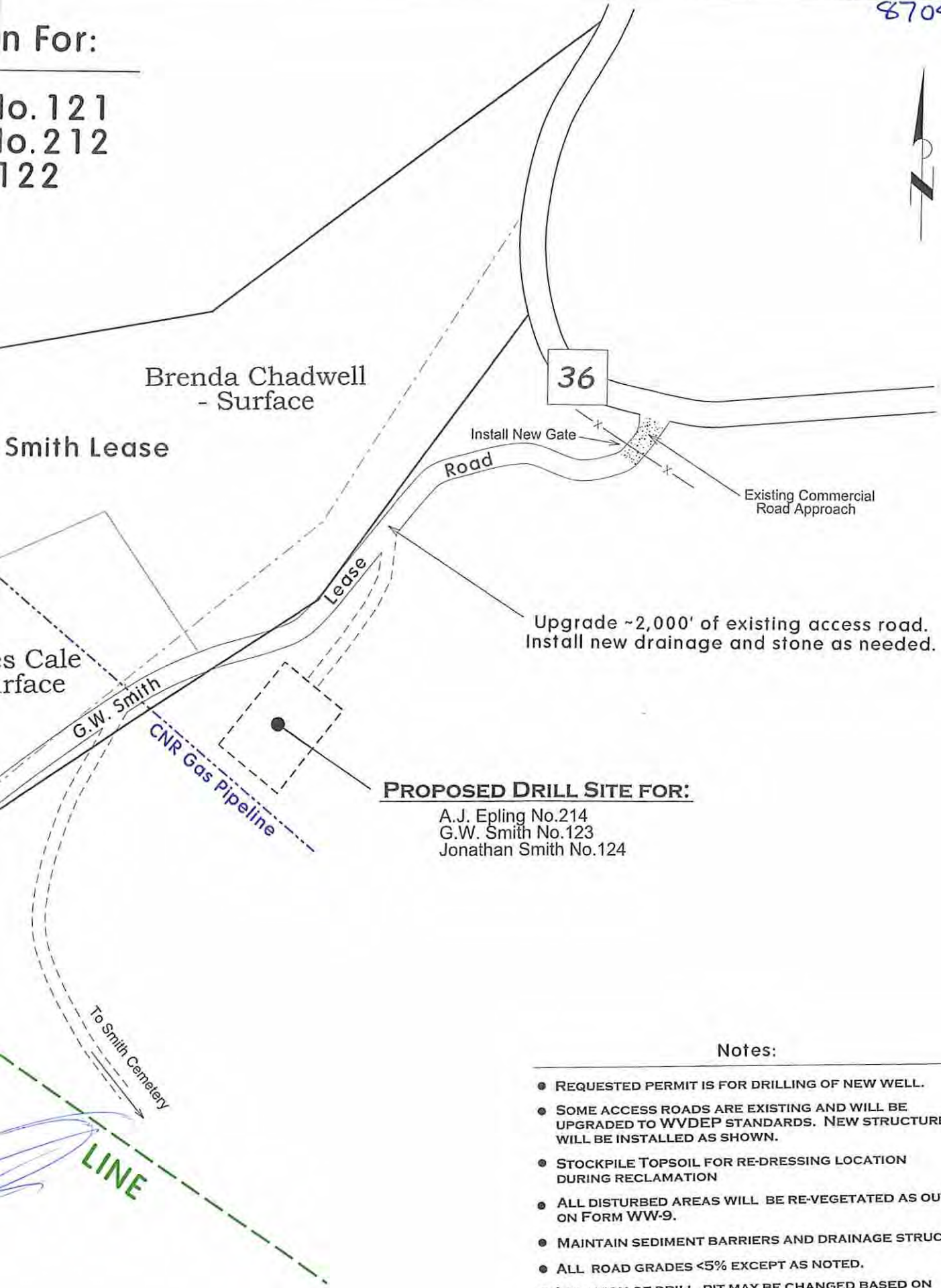
Received Office of Oil & Gas

JAN 22 2015

02/13/2015

n For:

No. 121  
No. 212  
122



**PROPOSED DRILL SITE FOR:**

A.J. Epling No.214  
G.W. Smith No.123  
Jonathan Smith No.124

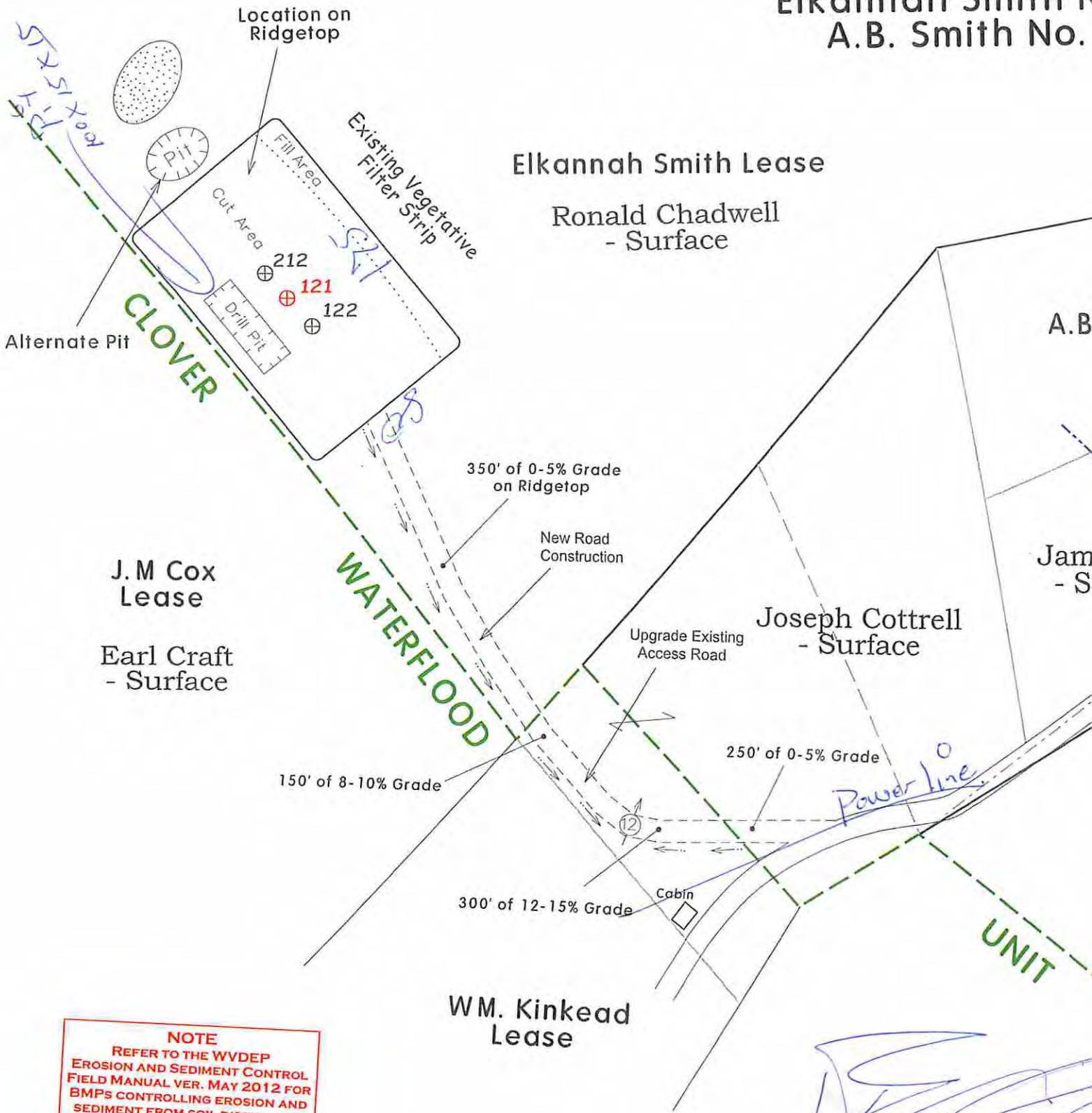
**Notes:**

- REQUESTED PERMIT IS FOR DRILLING OF NEW WELL.
- SOME ACCESS ROADS ARE EXISTING AND WILL BE UPGRADED TO WVDEP STANDARDS. NEW STRUCTURES WILL BE INSTALLED AS SHOWN.
- STOCKPILE TOPSOIL FOR RE-DRESSING LOCATION DURING RECLAMATION
- 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.

02/13/2015



Elkannah Smith M  
Elkannah Smith M  
A.B. Smith No.



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

*[Handwritten Signature]*  
 1/20/15

02/13/2015

SUBJECT WELL  
Elkannah Smith No.121



◆ Denotes Potential Water Supply Source and Surface Owner (From Aerial Photography)

Received  
Office of Oil & Gas  
JAN 22 2015

Section of  
Looneyville 7.5' Quadrangle

SCALE 1"=1000' 02/13/2015

LON: -81°17'17.9"

10930'

LON: 81°15'00"

LAT: 38°42'24.6"

LAT: 38°42'30"

# MAP OF H.G. ENERGY, LLC -WATERFLOOD UNIT- E. SMITH 121

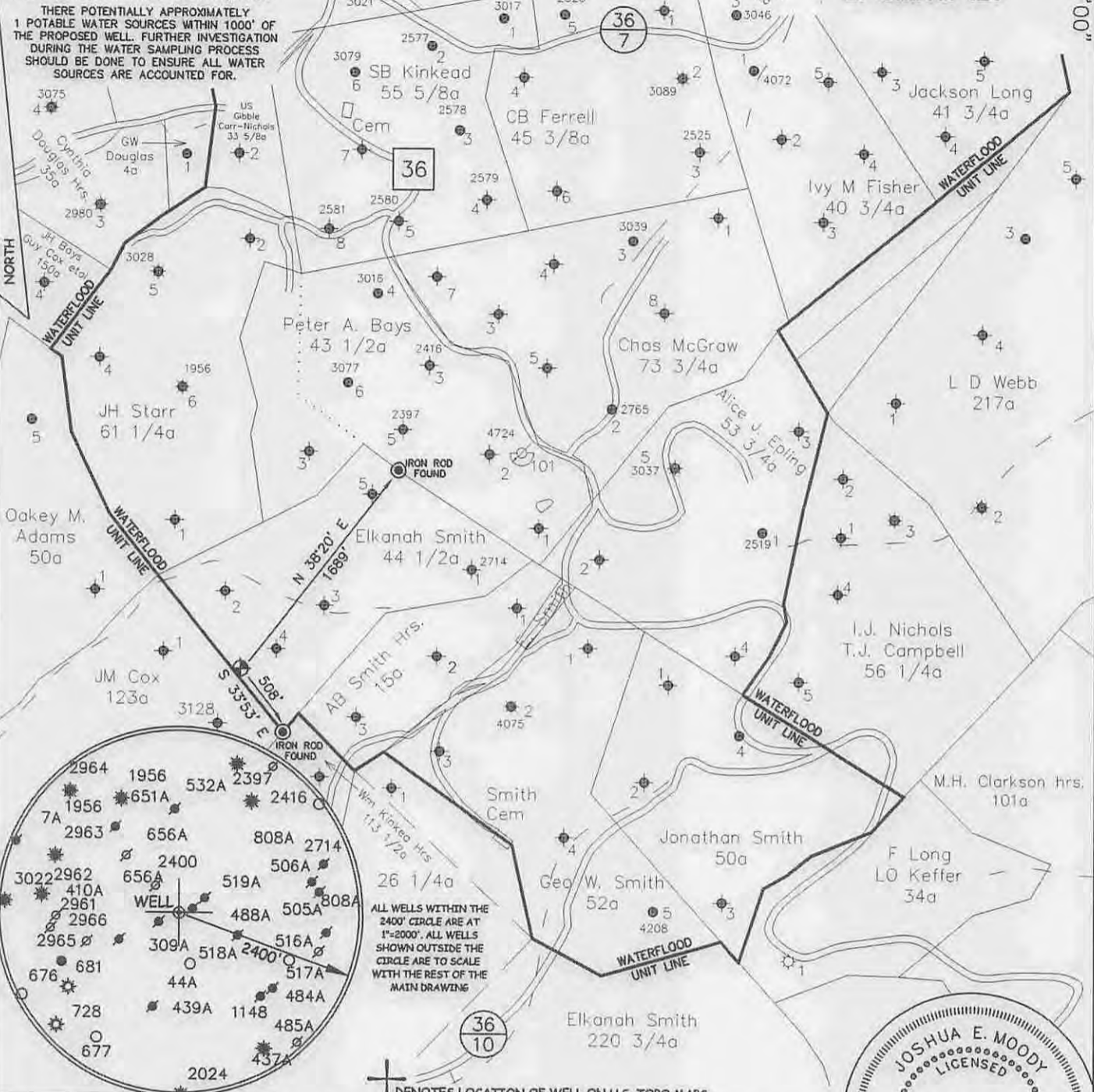
- SURVEY NOTES**
- 1 - Well ties and Latitude and Longitude were measured by DGPS (Sub-meter Mapping Grade). Bearings are referenced to UTM Grid North (Zone 17 North - NAD 1983).
  - 2 - Surface owners and adjoining information obtained from the Roane County Assessor's tax records.
  - 3 - No Title Opinion 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)**

Surface N-4,284,292m.  
E-474,946m.

**LOCATION REFERENCES**

**MAGNETIC BEARING**  
N 66° W 83.0' 10" HICKORY IN FENCE  
N 15° E 98.0' 12" CHERRY



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

JOB # 14-033  
DRAWING # 14CLOVER FOLDER  
SCALE 1" = 1000'  
MINIMUM DEGREE OF ACCURACY 1/200  
PROVEN SOURCE OF ELEV. 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 12/15/14  
OPERATOR'S WELL  
E. SMITH # 121

WELL TYPE: OIL  GAS  LIQUID INJECTION  WASTE DISPOSAL  HORIZONTAL   
(IF "GAS") PRODUCTION  STORAGE  DEEP  SHALLOW   
LOCATION: ELEVATION 1148' WATERSHED LAUREL FORK API WELL # \_\_\_\_\_  
DISTRICT SMITHFIELD COUNTY ROANE 47 - 087 - 047615  
QUADRANGLE LOONEYVILLE 7.5' STATE COUNTY PERMIT

SURFACE OWNER RONALD G. & BRENDA S. CHADWELL ACREAGE 50.00 ACRES +/-  
OIL & GAS ROYALTY OWNER FREEHOLD COMPANY ET AL LEASE ACREAGE 50.00 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 BIG INJUN ESTIMATED DEPTH TVD=2,270'  
WELL OPERATOR H.G. ENERGY, LLC DESIGNATED AGENT DIANE WHITE  
ADDRESS 5260 DuPONT ROAD ADDRESS 5260 DuPONT ROAD  
PARKERSBURG, WV 26101 PARKERSBURG, WV 26101

02/13/2015

COUNTY NAME PERMIT