



 west virginia department of environmental protection

Office of Oil and Gas
 601 57th Street, S.E.
 Charleston, WV 25304
 (304) 926-0450
 fax: (304) 926-0452

Austin Caperton, Cabinet Secretary
www.dep.wv.gov

Tuesday, February 5, 2019
 WELL WORK PERMIT
 Vertical / Convert

HG ENERGY, LLC
 5260 DUPONT ROAD

PARKERSBURG, WV 26101

Re: Permit approval for EJ MAY 230
 47-043-03489-00-00

This well work permit 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 any additional specific 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 of 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.

Per 35 CSR 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- 0450.

James A. Martin
 Chief

Operator's Well Number: EJ MAY 230
 Farm Name: JOHNSON, J., LOVEJOY
 U.S. WELL NUMBER: 47-043-03489-00-00
 Vertical Convert
 Date Issued: 2/5/2019

I

47-043-0348WS
02/08/2019

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 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.

FORM WW-3 (B)
1/12



1) Date: 10/19/2018
 2) Operator's Well No. EJ May 230
 3) API Well No.: 47 - 043 - 03489
 State County Permit
 4) UIC Permit No. UIC2R04300001AP

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: 970' Watershed: Bear Fork
 District: Duval County Lincoln Quadrangle Griffithsville 7.5'
 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 Jeffery Smith Name To Be Determined Upon Approval of Permit
 Address 5369 Big Tyler Road Address
 Cross Lanes, WV 25313

11) PROPOSED WELL WORK Drill / Drill deeper / Redrill / Stimulate
 Plug off old formation / Perforate new formation / Convert
 Other physical change in well (specify) Convert from producer to injection well

12) GEOLOGIC TARGET FORMATION Berea Depth 2459' Feet (top) to 2480' Feet (bottom)
 13) Estimated Depth of Completed Well, (or actual depth of existing well): 2630' Feet
 14) Approximate water strata depths: Fresh None Feet Salt 1150' Feet
 15) Approximate coal seam depths: 587' to 592'
 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 charcoal 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 | 11 5/8" | LS | NA | | X | 30' | 30' | Drilled In | Kinds |
| Fresh Water | 7" | LS | 17# | X | | 633' | 633' | 160 sks | |
| Coal | | | | | | | | | Sizes |
| Intermediate | | | | | | | | | |
| Production | 4 1/2" | J55 | 10.5# | | X | 2582.65' | 2582.65' | 235 sks | Depths set |
| Tubing | 2 3/8" | J55 | 4.7# | X | | 2365' | 2365' | 0 | |
| Liners | | | | | | | | | Perforations |
| | | | | | | | | | |

24) APPLICANT'S OPERATING RIGHTS were acquired from EJ May
 by deed / lease X / other contract / dated 02/07/1983 of record in the
 Lincoln County Clerk's office in Lease Book 35 Page 154

RECEIVED
Office of Oil and Gas

NOV 5 2018

FORM WW-3 (A)
1/12



1) Date: October 19, 2018
2) Operator's Well No. EJ May 230
3) API Well No.: 47 - 043 - 03489
State County Permit
4) UIC Permit No. UIC2R04300001AP

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,

5) Surface Owner(S) To Be Served
(a) Name Jonathan Johnson
Address 5 Bethel Drive
Yawkey, WV 25573
(b) Name David Lovejoy
Address 5 Bethel Drive
Yawkey, WV 25573
(c) Name _____
Address _____
6) Inspector Jeffery Smith
Address 5369 Big Tyler Road
Cross Lanes, WV 25313
Telephone 681-313-6743
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
Name NA
Address _____

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 18 .

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

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Office of Oil and Gas

NOV 5 2018

WV Department of
Environmental Protection

47-043-03489 WS

02/08/2019

WW-9
(2/15)

API Number 47 - 043 - 03489
Operator's Well No. EJ May 230

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) Bear Fork Quadrangle Griffithsville 7.5'

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

Will a pit be used? Yes No

If so, please describe anticipated pit waste: NA

Will a synthetic liner be used in the pit? Yes No If so, what ml.? _____

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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Will closed loop system be used? If so, describe: No

Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc. NA

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

Additives to be used in drilling medium? NA

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

-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) NA

-Landfill or offsite name/permit number? If needed, will be determined upon approval of permit.

Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

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

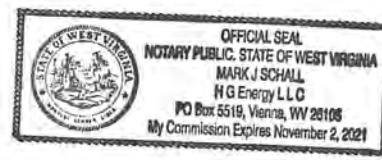
Company Official (Typed Name) Diane White

Company Official Title Agent

Subscribed and sworn before me this 19th day of October, 20 18

[Signature] Notary Public

My commission expires 11/2/2021



Form WW-9

Operator's Well No. EJ May 230

HG Energy, LLC

Proposed Revegetation Treatment: Acres Disturbed 0.2 acres Prevegetation pH _____

Lime _____ 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount _____ 500 lbs/acre

Mulch Straw _____ 2 Tons/acre

Seed Mixtures

| Temporary | | Permanent | |
|----------------------|-----------|----------------------|-----------|
| Seed Type | lbs/acre | Seed Type | lbs/acre |
| <u>Tall Fescue</u> | <u>40</u> | <u>Tall Fescue</u> | <u>40</u> |
| <u>Ladino Clover</u> | <u>5</u> | <u>Ladino Clover</u> | <u>5</u> |

Sediment Control Will Be Maintained At All Times

Attach:

Drawing(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided)

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Jeffrey Smith

Comments: All sediment control to be removed prior to release.

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Office of Oil and Gas

NOV 5 2018

WV Department of
Environmental Protection

Title: Oil & Gas Inspector Date: 10-29-18

Field Reviewed? Yes No

Reclamation Plan For:

E.J. May No. 230

(47-043-03489)

Jonathan Johnson
- Surface of Record
Dwight Lovejoy - Claim

E.J. May Lease



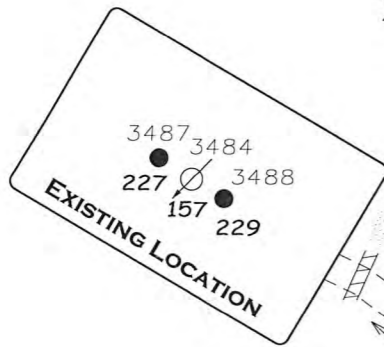
Note
Access roads and Drill Site were constructed
in 2015 for the drilling of the subject well.
All structures are in place and will be maintained

E.J. May Lease

Randall &
Patricia Coy
- Surface

E.J. May Lease

Dwight Lovejoy
- Surface



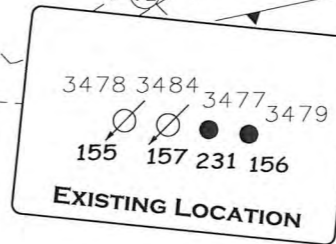
200' of 5-8% Grade

12

200' of 5-8% Grade

400' of 0-5% Grade

150' of 5-8% Grade



Existing Road
To MA Bays
No. 125

Notes:

- REQUESTED PERMIT IS FOR CONVERSION OF AN EXISTING WELL.
- ACCESS ROADS ARE EXISTING AND WILL BE MAINTAINED TO WVDEP STANDARDS.
- NO EARTHWORK IS ANTICIPATED FOR REQUESTED WELL WORK
- NO PIT WILL BE REQUIRED FOR REQUESTED WELL WORK.
- ANY DISTURBED AREAS WILL BE RE-VEGETATED AS OUTLINED ON FORM WW-9.
- MAINTAIN SEDIMENT BARRIERS AND DRAINAGE STRUCTURES.
- DRAWING NOT TO SCALE.

0.4 Mi. to WV SR 3.
See Page 2 for
Waterflood Road Detail

M.A. Bays Lease

HG Energy
- Surface

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

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NOV 5 2018
WV Department of
Environmental Protection

47-043-03489 WS

SUBJECT WELL
E.J. May No.230
47-043-03489

02/08/2019



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Office of Oil and Gas

NOV 5 2018

WV Department of
Environmental Protection

Section of
Griffithsville 7.5' Quadrangle

SCALE 1"=1000'

LATITUDE 38° 15' 00"

LONGITUDE 81° 57' 30"

5,590'

As Drilled Latitude = 38° 14' 04.7"

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).

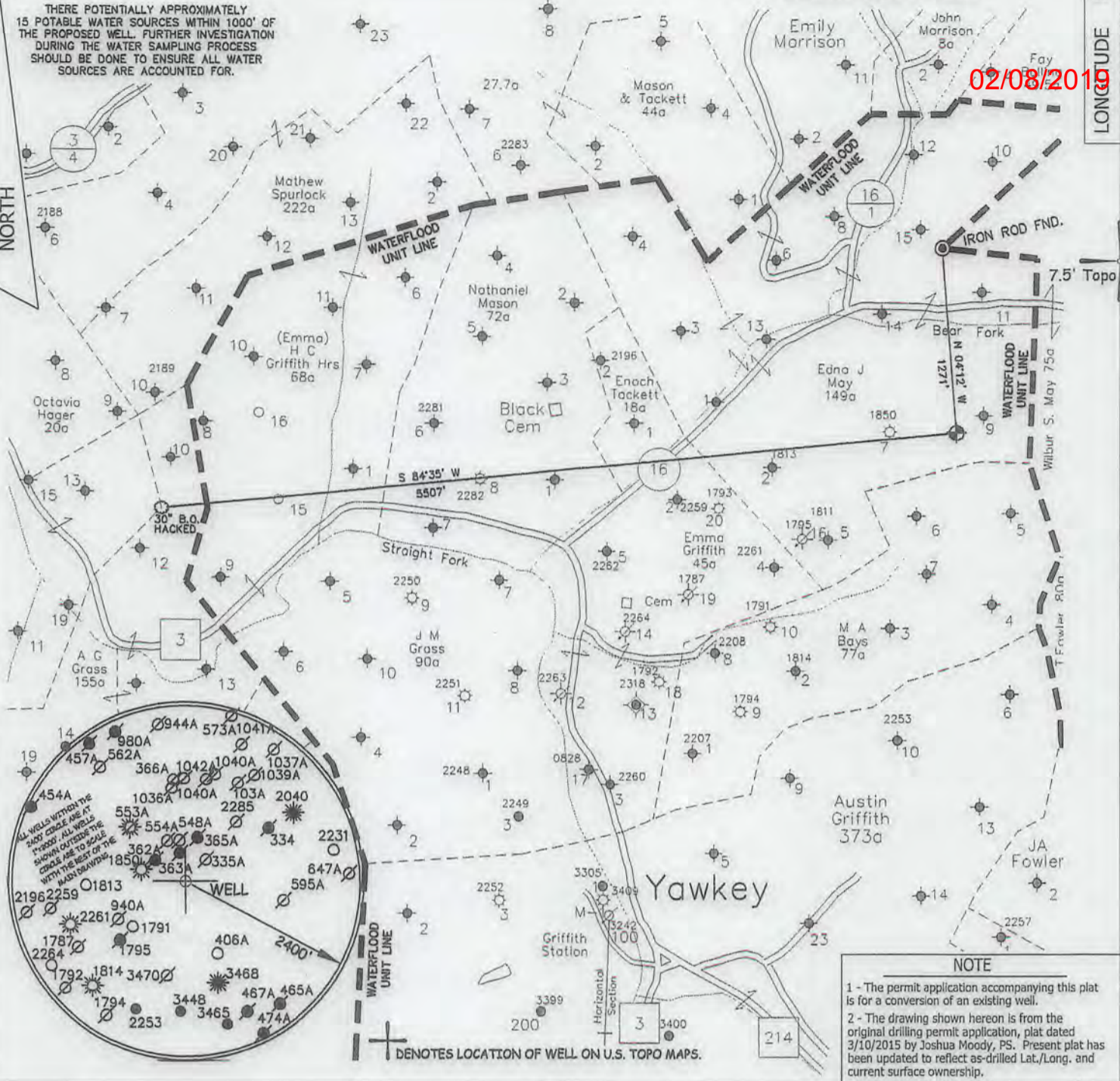
2 - Surface owners and adjoining information obtained from the Lincoln County Assessor's tax records.

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

| UTM Coordinates (Zone 17N-NAD 1983) | | LOCATION REFERENCES | |
|--|------------------------------|---------------------|--|
| | | MAGNETIC BEARING | |
| Surface | N - 4,232,294 E - 416,140 | EXISTING WELL | |

**MAP OF
H.G. ENERGY, LLC
-WATERFLOOD UNIT-
EDNA MAY 230**

THESE POTENTIALLY APPROXIMATELY 15 POTABLE WATER SOURCES WITHIN 1000' OF THE PROPOSED WELL. FURTHER INVESTIGATION DURING THE WATER SAMPLING PROCESS SHOULD BE DONE TO ENSURE ALL WATER SOURCES ARE ACCOUNTED FOR.



02/08/2019

NOTE

1 - The permit application accompanying this plat is for a conversion of an existing well.

2 - The drawing shown hereon is from the original drilling permit application, plat dated 3/10/2015 by Joshua Moody, PS. Present plat has been updated to reflect as-drilled Lat./Long. and current surface ownership.

FILE NO. _____

SCALE 1" = 1000'

MINIMUM DEGREE OF ACCURACY _____

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 ENVIRONMENTAL PROTECTION.

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



WEST VIRGINIA
Division of Environmental Protection
Office of Oil and Gas
601 57th Street
Charleston, West Virginia 25301

DATE September 27, 2018

FARM E.J. May No.230

API WELL NO. 47 - 043 - 03489 WS

WELL TYPE: OIL ___ GAS ___ LIQUID INJECTION X WASTE DISPOSAL ___
(IF "GAS") PRODUCTION ___ STORAGE ___ DEEP ___ SHALLOW ___

LOCATION: ELEVATION 970' WATERSHED Bear Fork
DISTRICT Duval COUNTY Lincoln
QUADRANGLE Griffithsville 7.5'

SURFACE OWNER Jonathan Johnson / David Lovejoy ACREAGE 20 Ac.
OIL & GAS ROYALTY OWNER HG Energy, LLC et al. LEASE ACREAGE 149 Ac.
LEASE NO. 80221-50

PROPOSED WORK: DRILL ___ CONVERT X DRILL DEEPER ___ REDRILL ___ FRACTURE OR
STIMULATE ___ PLUG OFF OLD FORMATION ___ PERFORATE NEW
FORMATION ___ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) Convert to Liquid Injection Well

PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___
TARGET FORMATION Berea ESTIMATED DEPTH 2,630'

WELL OPERATOR HG Energy LLC. DESIGNATED AGENT Diane White
ADDRESS 5260 DuPont Road ADDRESS 5260 DuPont Road
Parkersburg, WV 26101 Parkersburg, WV 26101