



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 13, 2018
WELL WORK PERMIT
Vertical / New Drill

HG ENERGY, LLC
5260 DUPONT ROAD

PARKERSBURG, WV 26101

Re: Permit approval for ROBERT FOWLER NO. 506
47-043-03581-00-00

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: ROBERT FOWLER NO. 506
Farm Name: ANDY & REBECCA MCCLURE
U.S. WELL NUMBER: 47-043-03581-00-00
Vertical / New Drill
Date Issued: 2/13/2018

Promoting a healthy environment.

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, drilling ceased, completion of any other permitted well work and completion of the 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: 11/29/2017
 2) Operator's Well No. Robert Fowler 506
 3) API Well No.: 47 - Lincoln - s
 State County Permit
 4) UIC Permit No. UIC2R04302AP

**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: 870' Watershed: Porter 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) _____
 12) GEOLOGIC TARGET FORMATION Berea Depth 2572 Feet (top) to 2593 Feet (bottom)
 13) Estimated Depth of Completed Well, (or actual depth of existing well): 2723 TMD Feet
 14) Approximate water strata depths: Fresh 100 Feet Salt 1050 Feet
 15) Approximate coal seam depths: 417'
 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.)	Office of Oil and Gas RECEIVED PACKERS JAN 18 2018 WV Department of Environmental Protection
	Size	Grade	Weight per ft.	New	Used	For Drilling	Left In Well		
Conductor									Kinds
Fresh Water	7"	LS	17#	x		465'	465'	CTS	Sizes
Coal									2.375"
Intermediate									Depths set
Production	4 1/2"	J-55	10.5#	x		2700'	2700'	150	2370'
Tubing	2 3/8"	J-55	4.6#	x		2470'	2470'		Perforations
Liners									Top Bottom

24) APPLICANT'S OPERATING RIGHTS were acquired from J F Cork Heirs
 by deed _____ / lease x / other contract _____ / dated 06/18/1904 of record in the
Lincoln County Clerk's office in Lease Book 36 Page 96

WW-2B1
(5-12)

Well No. Robert Fowler 506

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 Lab
Sampling Contractor Sturm Environmental Lab

Well Operator HG Energy, LLC
Address 5260 Dupont Road
Parkersburg, WV 26101
Telephone 34-420-1119

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Office of Oil and Gas
JAN 18 2018
WV Department of
Environmental Protection

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.

* No water sources within 1000 feet. There is a water (Andy and Becky McClure) which has been recently tested approximately 1200 feet from the proposed site.

API Number 47 - _____ - _____
Operator's Well No. Robert Fowler 506

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) Porter 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: Fluids encountered while drilling ~~production~~ ^{INJECTION} well

Will a synthetic liner be used in the pit? Yes 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 No land application of fluids)

Will closed loop system be used? If so, describe: NA

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

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

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

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Remove offsite to approved facility

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

-Landfill or offsite name/permit number? _____

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

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JAN 18 2018
WV Department of
Environmental Protection

Subscribed and sworn before me this 1st day of December, 2017
[Signature] Notary Public

My commission expires 11/2/2021



HG Energy, LLC

Proposed Revegetation Treatment: Acres Disturbed 1.0 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
Tall Fescue	40
Ladino Clover	5

Seed Type	lbs/acre
Tall Fescue	40
Ladino Clover	5

**** Sediment Control Will Be In Place 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: Jeff Smith

Comments: All sediment control to be removed prior to release

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W.V. Department of
Environmental Protection

Title: Oil & Gas Inspector Date: 1-2-18

Field Reviewed? Yes No

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

Operator Name: HG Energy, LLC

Watershed (HUC 10): Porter Fork Quad: Griffithville 7.5'

Farm Name: Robert Fowler

1. List the procedures used for the treatment and discharge of fluids. Include a list of all operations that could contaminate the groundwater.

NA - No land application of fluids

2. Describe procedures and equipment used to protect groundwater quality from the list of potential contaminant sources above.

NA

3. List the closest water body, distance to closest water body, and distance from closest Well Head Protection Area to the discharge area.

NA

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JAN 18 2018

4. Summarize all activities at your facility that are already regulated for groundwater protection.

WV Department of
Environmental Protection

NA

5. Discuss any existing groundwater quality data for your facility or an adjacent property.

NA

6. Provide a statement that no waste material will be used for deicing or fill material on the property.

NA

7. Describe the groundwater protection instruction and training to be provided to the employees. Job procedures shall provide direction on how to prevent groundwater contamination.

NA

8. Provide provisions and frequency for inspections of all GPP elements and equipment.

NA

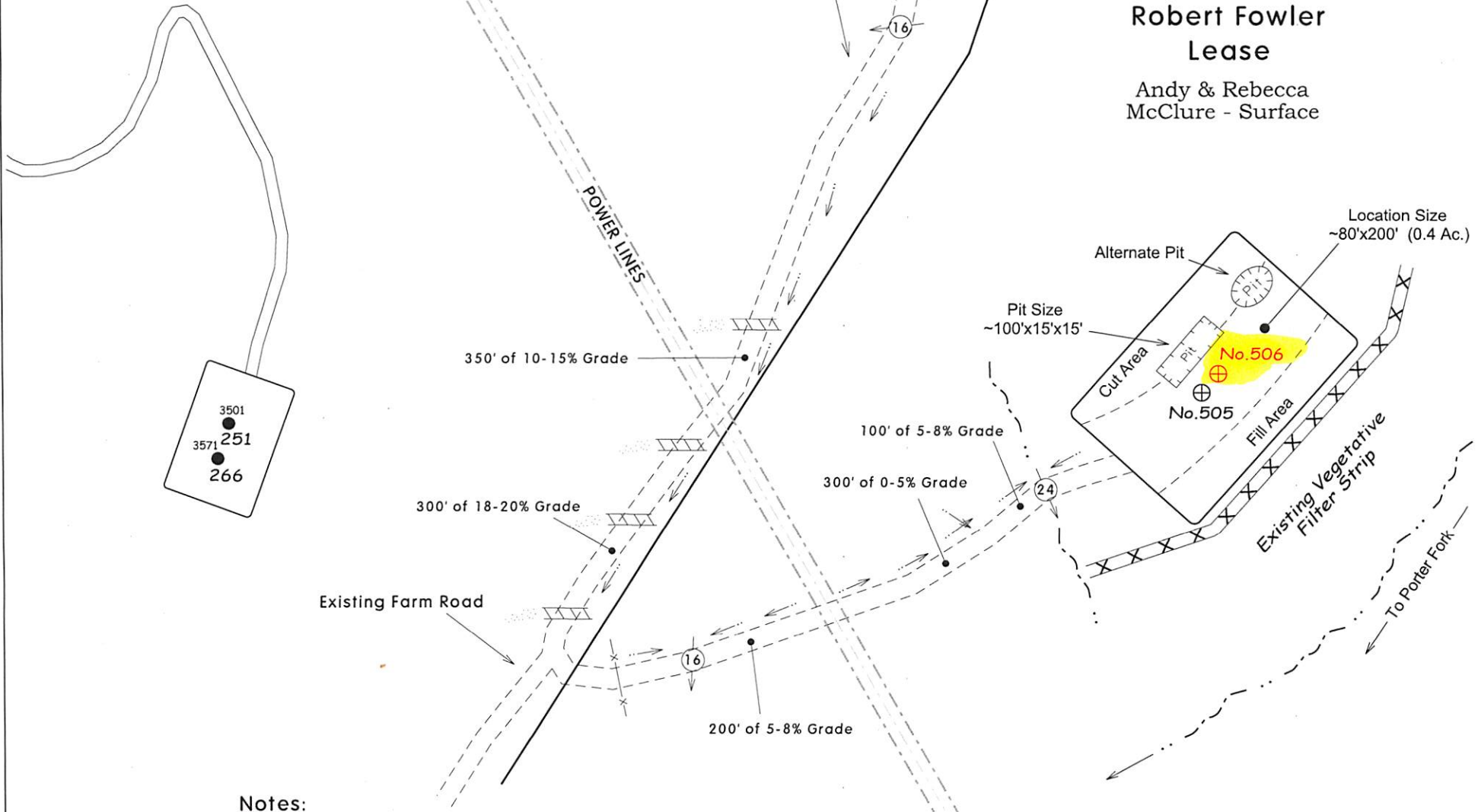
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Signature: Diane White

Date: December 1, 2017

Robert Fowler Lease

Andy & Rebecca McClure - Surface

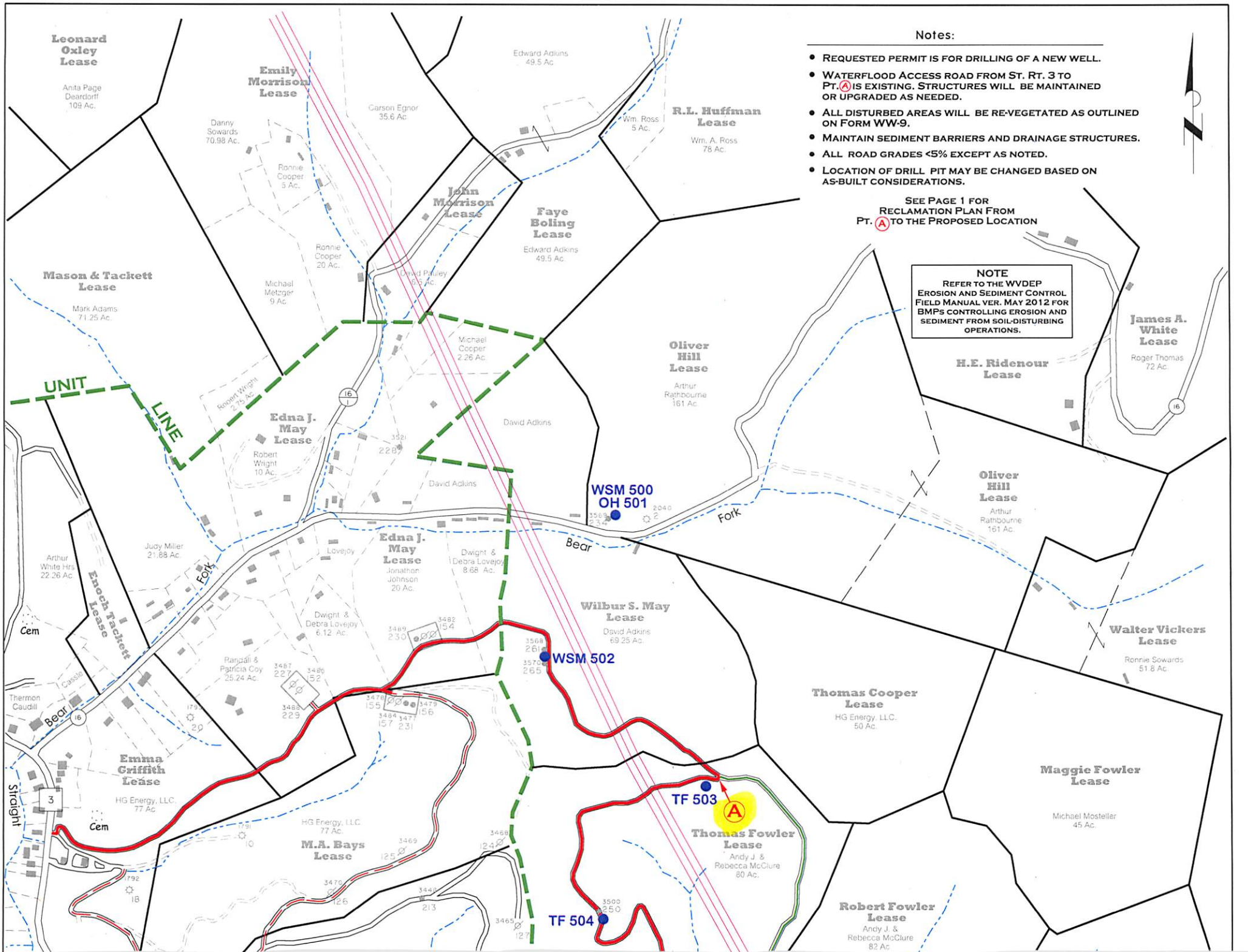


Notes:

- REQUESTED PERMIT IS FOR DRILLING OF NEW WELL.
- ALL 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.
- STACK BRUSH BELOW DISTURBED AREAS FOR SEDIMENTATION CONTROL.
- DRAWING NOT TO SCALE.

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

47043035815



Notes:

- REQUESTED PERMIT IS FOR DRILLING OF A NEW WELL.
- WATERFLOOD ACCESS ROAD FROM ST. RT. 3 TO PT. (A) IS EXISTING. STRUCTURES WILL BE MAINTAINED OR UPGRADED AS NEEDED.
- 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.

SEE PAGE 1 FOR RECLAMATION PLAN FROM PT. (A) TO THE PROPOSED LOCATION

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

Leonard Oxley Lease
Anita Page Deardorff
109 Ac.

Emily Morrison Lease
Danny Sowards
70.98 Ac.

Edward Adkins
49.5 Ac.

R.L. Huffman Lease
Wm. A. Ross
78 Ac.

Carson Egnor
35.6 Ac.

John Morrison Lease
David Parley
6.8 Ac.

Faye Boling Lease
Edward Adkins
49.5 Ac.

Mason & Tackett Lease
Mark Adams
71.25 Ac.

Ronnie Cooper
5 Ac.

Ronnie Cooper
20 Ac.

Michael Metzger
9 Ac.

Michael Cooper
2.26 Ac.

Oliver Hill Lease
Arthur Rathbourne
161 Ac.

H.E. Ridenour Lease

James A. White Lease
Roger Thomas
72 Ac.

UNIT LINE

Edna J. May Lease
Robert Wright
10 Ac.

David Adkins

WSM 500 OH 501

Oliver Hill Lease
Arthur Rathbourne
161 Ac.

Arthur White Hrs
22.26 Ac.

Judy Miller
21.88 Ac.

Edna J. May Lease
Jonathan Johnson
20 Ac.

David Adkins

Wilbur S. May Lease
David Adkins
69.25 Ac.

Walter Vickers Lease
Ronnie Sowards
51.8 Ac.

WSM 502

Thomas Cooper Lease
HG Energy, LLC.
50 Ac.

Emma Griffith Lease
HG Energy, LLC.
77 Ac.

M.A. Bays Lease
HG Energy, LLC.
77 Ac.

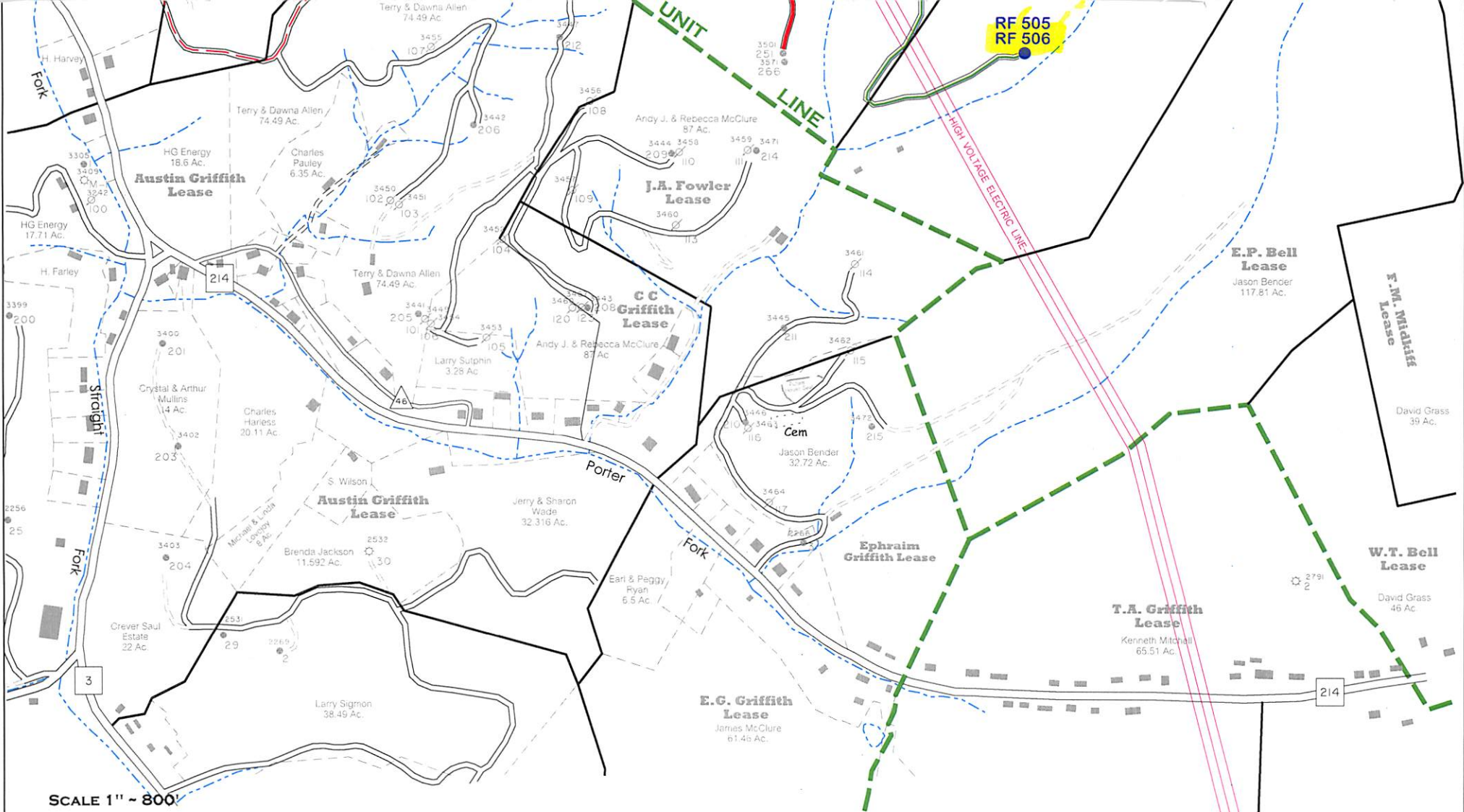
Thomas Fowler Lease
Andy J. & Rebecca McClure
80 Ac.

Maggie Fowler Lease
Michael Mosteller
45 Ac.

TF 503

Robert Fowler Lease
Andy J. & Rebecca McClure
82 Ac.

TF 504



RF 505
RF 506

SCALE 1" = 800'



GRIFFTHSVILLE WATERFLOOD

Lincoln County, W.Va.

RECLAMATION PLAN SHOWING ROAD SYSTEMS TO BE USED FOR 2018 DRILLING PROGRAM

NOTES

1. REFER TO THE WVDEP EROSION AND SEDIMENTATION CONTROL MANUAL (VER. MAY 20, 2013) FOR BMP'S CONTROLLING EROSION AND SEDIMENTATION FROM ALL SOIL-DISTURBING OPERATIONS.
2. SEE PAGE ONE OF RECLAMATION PLAN FOR DETAILS OF NEW ROAD CONSTRUCTION AND ROAD UPGRADES FROM POINT **(A)** TO DRILL SITE LOCATION.
3. EXISTING WATERFLOOD ACCESS ROADS WILL BE MAINTAINED IN PRESENT CONDITION. THESE ROADS WERE CONSTRUCTED UNDER CONDITIONS SET FORTH IN VARIOUS DRILLING PERMITS ISSUED BY WVDEP-OOG PRIOR TO 2015 (AS SHOWN). SEE PERMITS ON FILE FOR MORE DETAIL.

LEGEND

- EXISTING WATERFLOOD ROADS TO BE USED.
- OTHER EXISTING MAIN WATERFLOOD ROADS (POSSIBLE ACCESS).
- EXISTING LEASE OR FARM ROADS TO BE UPGRADED.
- NEW ROADS TO BE CONSTRUCTED.
- RF 505
- LOCATION FOR PROPOSED WELLS
- POTENTIAL WATER SUPPLY SOURCE TO BE SAMPLED (LOC. APPROX.)

47043035815

SUBJECT WELL
Robert Fowler No.506



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Office of Oil and Gas

JAN 18 2018

WV Department of Environmental Protection

Section of
Griffithsville 7.5' Quadrangle

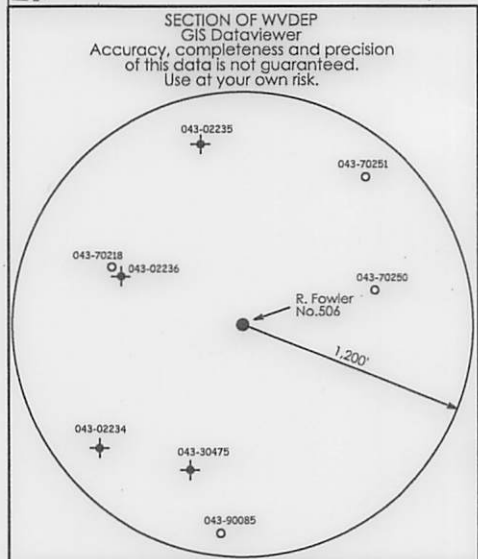
SCALE 1"=1000'

Longitude = 81°56' 52.99"

9,015'

LATITUDE 38° 15' 00"

Bottom Hole Long.= 81°56' 52.8"



Well Coordinates	
UTM (NAD83) - Meters	
Surface	Bottom Hole
N - 4,231,560 E - 417,034	N - 4,231,324 E - 417,037

Location References
(Magnetic Bearing - Slope Dist.)
N 50° E 133' 16" Poplar
S 47° W 83' 20" Poplar

NOTES ON SURVEY

- 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).
- Surface owner information obtained from the Lincoln County Assessor's tax records.

◆ - DENOTES A POSSIBLE WATER SUPPLY SOURCE LOCATED FROM CIRCA 2003 AERIAL PHOTOGRAPHY - NOT BY SURVEY. OTHER SOURCES MAY BE PRESENT.

⊕ - DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

FILE NO. _____

SCALE **1" = 1000'**

MINIMUM DEGREE OF ACCURACY **Sub-Meter**

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 **November 14, 2017**

FARM **Robert Fowler No.506**

API WELL NO.
47 - 043 - 035815

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

LOCATION: ELEVATION **870'** WATERSHED **Porter Fork**
DISTRICT **Duval** COUNTY **Lincoln**
QUADRANGLE **Griffithsville 7.5'**

SURFACE OWNER **Andy & Rebecca McClure** ACREAGE **82 Ac.**

OIL & GAS ROYALTY OWNER **Eugene Armstrong et al.** LEASE ACREAGE **82 Ac.**
LEASE NO. **108322-00**

PROPOSED WORK: DRILL CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR
STIMULATE PLUG OFF OLD FORMATION ___ PERFORATE NEW
FORMATION ___ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) **NOTE: This well will be drilled directionally as shown on the plat above.**

PLUG AND ABANDON ___ CLEAN OUT AND REPLUG ___
TARGET FORMATION **Berea** ESTIMATED DEPTH **TMD - 2,723'**

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

FORM IV-6