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

June 30, 2015

WELL WORK PERMIT

Secondary Recovery Well

This permit, API Well Number: 47-4303483, 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: EPHRAIM GRIFFITH 132
Farm Name: BENDER, JASON & ASHLEY
API Well Number: 47-4303483
Permit Type: Secondary Recovery Well
Date Issued: 06/30/2015

Promoting a healthy environment.

4303483S

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.

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FORM WW-3 (B)
1/12

1) Date:
2) Operator's Well No. Ephraim Griffith 132
3) API Well No.: 47 - Lincoln - s
State County Permit
4) UIC Permit No. UIC2R04301AP

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: 725' Watershed: Porter Fork
District: Duval County Lincoln Quadrangle Griffithsville 7.5'
7) WELL OPERATOR: HG Energy, LLC
Address 5260 Dupont Road
Parkersburg, WV 26101
8) DESIGNATED AGENT Diane White
Address 5260 Dupont Road
Parkersburg, WV 26101
9) OIL & GAS INSPECTOR TO BE NOTIFIED
Name Jeremy James
Address P. O. Box 147
Ona, WV 25545
10) DRILLING CONTRACTOR
Name To Be Determined Upon Approval of Permit
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) GEOLOGIC TARGET FORMATION Berea Depth 2707 Feet (top) to 2724 Feet (bottom)
13) Estimated Depth of Completed Well, (or actual depth of existing well): 2942 TMD Feet
14) Approximate water strata depths: Fresh 150 Feet Salt 1000 Feet
15) Approximate coal seam depths: 200
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 RDT 04/23/15
Fresh Water	7"	LS	17#	X		300'	300'	CTS	
Coal									Sizes
Intermediate									2.375" x 4.5"
Production	4 1/2"	J-55	10.5#	X		2892'	2892'	150 sks	Depths set
Tubing	2 3/8"	J-55	4.6#	X		2507'	2507'		2400'
Liners									Perforations
									Top Bottom

24) APPLICANT'S OPERATING RIGHTS were acquired from Ephraim Griffith
by deed / lease X / other contract / dated ~~00/00/1905~~ 06/04/1904 of record in the
Lincoln County Clerk's office in lease Book 36 Page 67

Received
APR 27 2015

Office of Oil and Gas
WV Dept. of Environmental Protection

4303483S

FORM WW-3 (A)
1/12

1) Date: April 10, 2015
2) Operator's Well No. Ephraim Griffith 132
3) API Well No.: 47 - ____ - ____
State County Permit
4) UIC Permit No. UIC2R04301AP

CK# 2995 $650.00

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 Jason & Ashley Bender
Address 20 Open Harvest Drive
Yawkey, WV 25573
(b) Name Jeremy & Sarah McClung
Address 1754 Midway Road
Sumerco, WV 25567
(c) Name
Address

6) Inspector Jeremy James
Address P. O. Box 147
Ona, WV 25545
Telephone

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
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 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
APR 27 2015

Office of Oil and Gas
WV Dept. of Environmental Protection

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WW-2B1
(5-12)

Well No. Ephraim Griffith 132

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 Labs
Sampling Contractor Sturm Environmental Labs

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.

- See Attached Sheet -

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Office of Oil and Gas
WV Dept. of Environmental Protection

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WW-2B1
Page 2 - Continued

Well No. Edna J May 132

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.

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.

Surface Owners Identified With Water Sources to be Sampled and Tested:

* Edward Price
4850 Midway Road
Yawkey, WV 25573

* Jeremy McClung
1754 Midway Road
Sumerco, WV 25567

* Garland Adkins
5249 Straight Fork Road
Griffithsville, WV 25521

* Joann McMellon
4642 Midway Road
Yawkey, WV 25573

* Wilford Bird
4622 Midway Road
Yawkey, WV 25573

* Mary Pauley
221 Bowie Street
St Albans, WV 25177

* Jackie Stowers
4818 Midway Road
Yawkey, WV 25573

* Earl Ryan
4797 Midway Road
Yawkey, WV 25573

* DAVIS Brothers, LLC
P. O. Box 11
Sumerco, WV 25567

* Delphia Tudor
4689 Midway Road
Yawkey, WV 25573

* Jason Bender
20 Open Harvest Drive
Yawkey, WV 25573

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WW-9
Rev. 5/10

Page 67 of _____
API Number 47 - _____ - _____
Operator's Well No. Ephraim Griffith 132

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 Porter Fork Quadrangle Griffithsville 7.5'

Elevation 725' County Lincoln District Duval

Description of anticipated Pit Waste: Fluids accumlated while drilling the 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:

- X Land Application
- _____ Underground Injection (UIC Permit Number _____)
- _____ 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 and 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.

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Office of Oil and Gas
WV Dept. of Environmental Protection

Company Official Signature Diane White

Company Official (Typed Name) Diane White

Company Official Title Agent

Subscribed and sworn before me this 10th day of April 2015

S. Dianne Dulaney
Notary Public

My commission expires Oct. 4, 2016

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
S. DIANNE DULANEY
5260 Dupont Road
Parkersburg, West Virginia 26101
My Commission Expires Oct. 4, 2016

OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
S. DIANNE DULANEY
[illegible] Road
Parkersburg, West Virginia 26101
My Commission Expires Oct. 4, 2016

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Form WW-9

Operator's Well No. Ephraim Griffith 132

LEGEND

Property Boundary
Road
Existing Fence
Planned Fence
Stream
Open Ditch
Rock
North N
Buildings
Water wells W
Drill site

Diversion
Spring
Wet Spot
Drain Pipe with size in inches 18
Waterway
Cross Drain
Artificial Filter Strip
Pit: cut walls
Pit: compacted fill walls
Area for Land Application of Pit Waste

Proposed Revegetation Treatment: Acres Disturbed 1.0 acres 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 1 Tons/acre

Seed Mixtures

Area I		Area II	
Seed Type	lbs/acre	Seed Type	lbs/acre
Tall Fescue	40	Tall Fescue	40
Ladino Clover	5	Ladino Clover	5

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.

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Office of Oil and Gas
WV Dept. of Environmental Protection

Plan Approved by: Ralph D. Triplett

Comments: _____

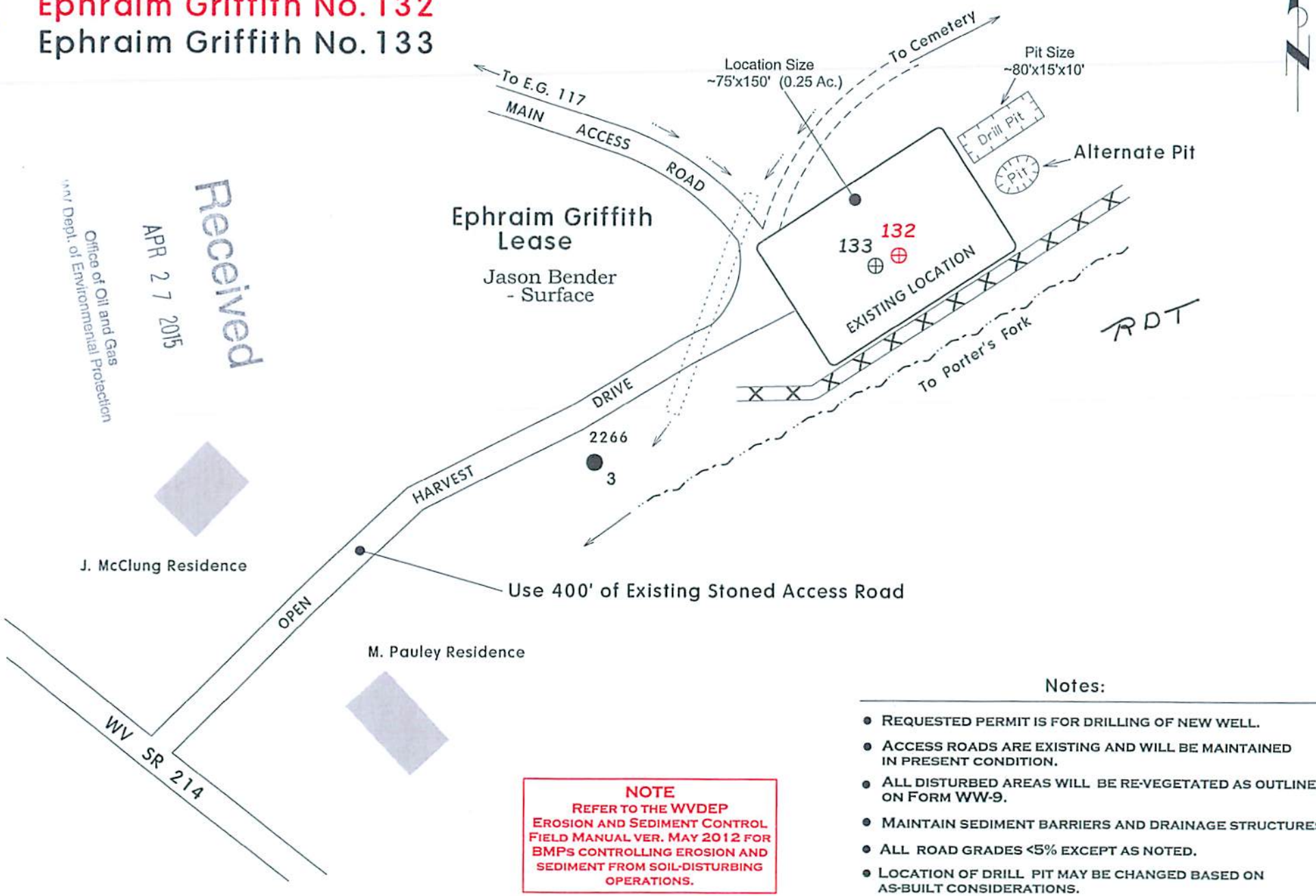
Title: District Inspector Date: April 23, 2015

Field Reviewed? (Lincoln ✓) Yes ( ) No

4303483S

Reclamation Plan For:

Ephraim Griffith No. 132
Ephraim Griffith No. 133



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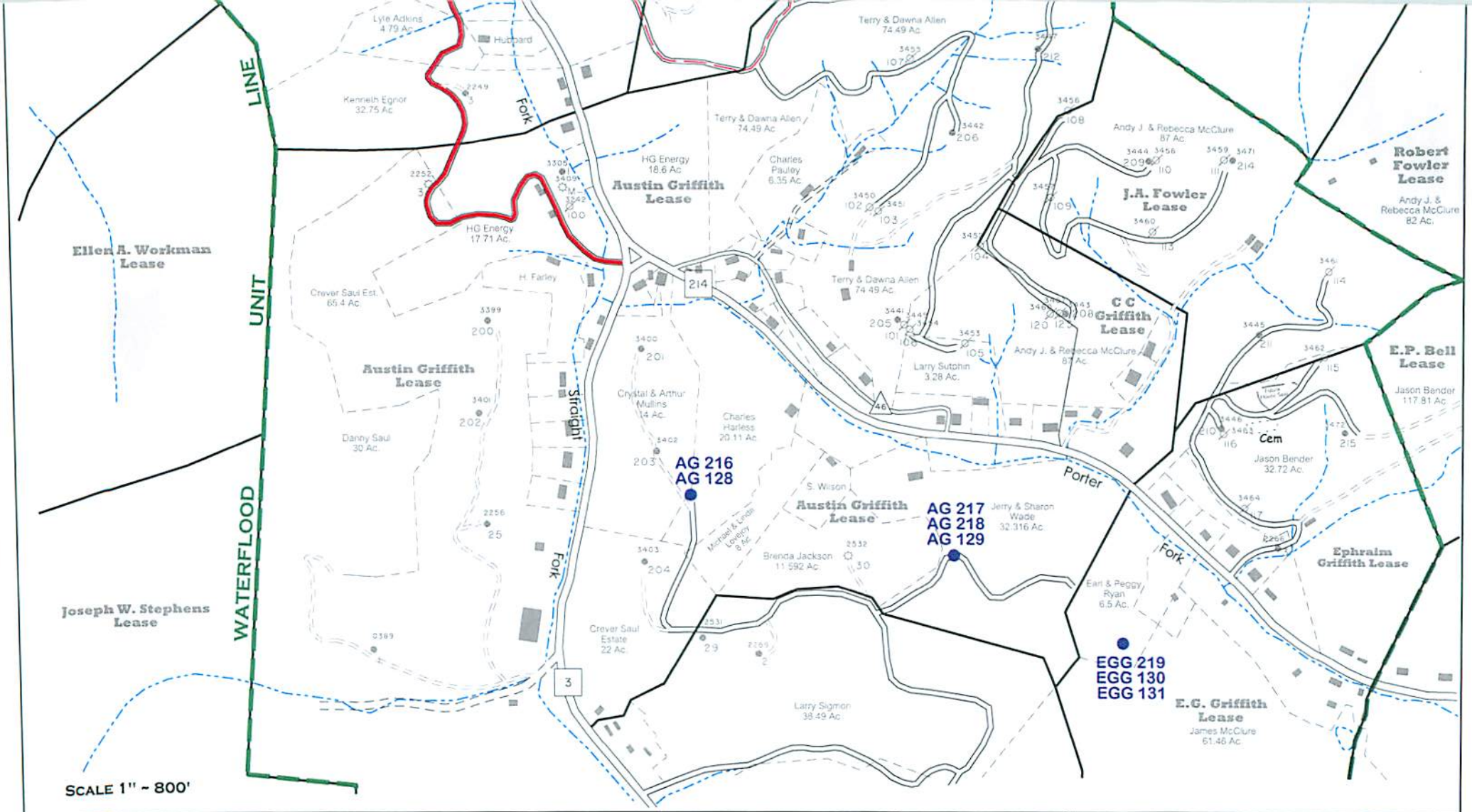
NOTE
REFER TO THE WVDEP EROSION AND SEDIMENT CONTROL FIELD MANUAL VER. MAY 2012 FOR BMPS CONTROLLING EROSION AND SEDIMENT FROM SOIL-DISTURBING OPERATIONS.

Notes:

- REQUESTED PERMIT IS FOR DRILLING OF NEW WELL.
- ACCESS ROADS ARE EXISTING AND WILL BE MAINTAINED IN PRESENT CONDITION.
- 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.



GRIIFTHSVILLE WATERFLOOD

Lincoln County, W.Va.

RECLAMATION PLAN SHOWING ROAD SYSTEMS TO BE USED FOR 2015 DRILLING PROGRAM (NORTH)

MARCH 3, 2015

PAGE 2

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.
- AG 216 — LOCATION FOR PROPOSED WELLS
- POTENTIAL WATER SUPPLY SOURCE TO BE SAMPLED (LOC. APPROX.)

4303483S

Received

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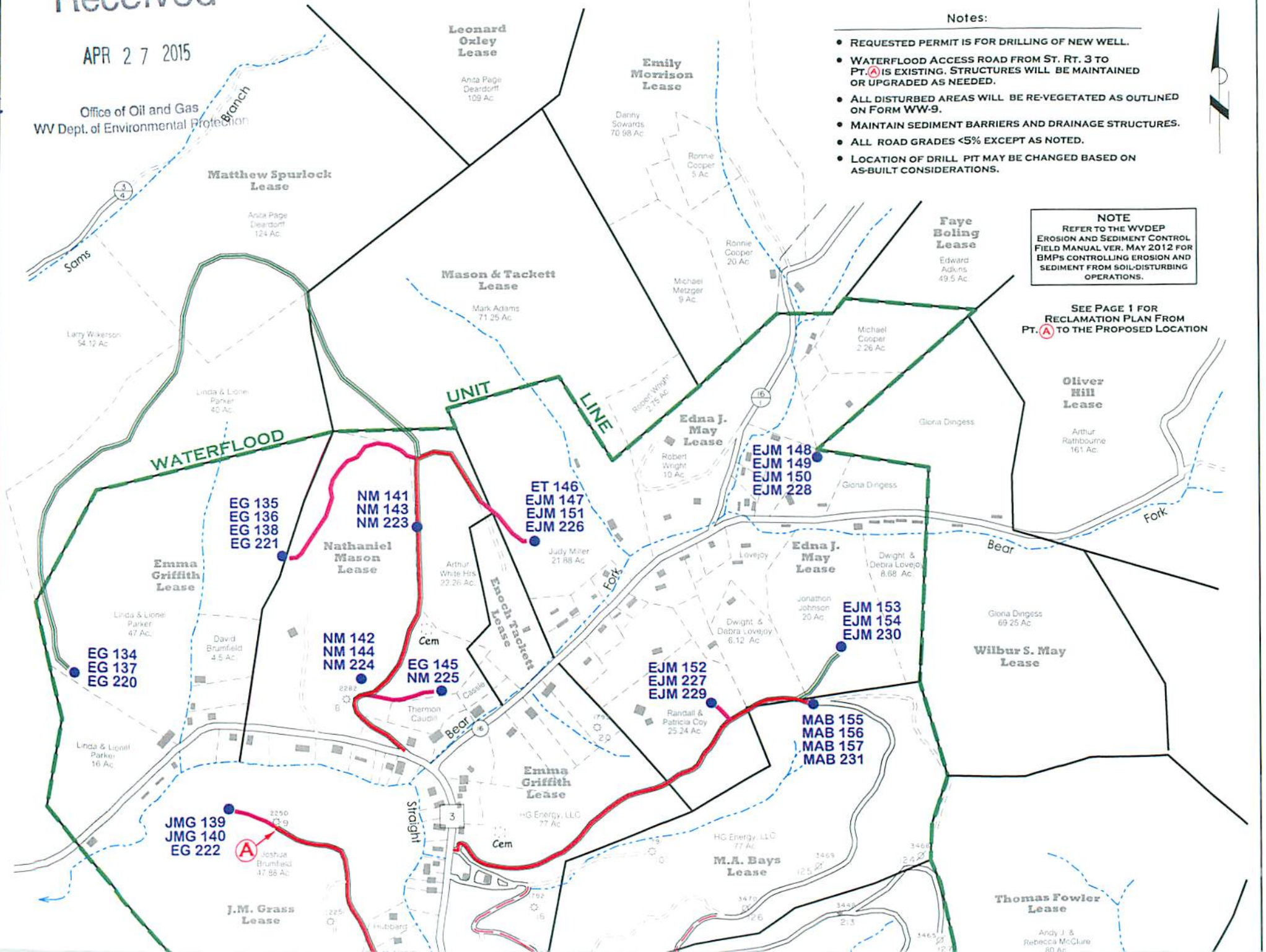
Office of Oil and Gas
WV Dept. of Environmental Protection

Notes:

- REQUESTED PERMIT IS FOR DRILLING OF 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.

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

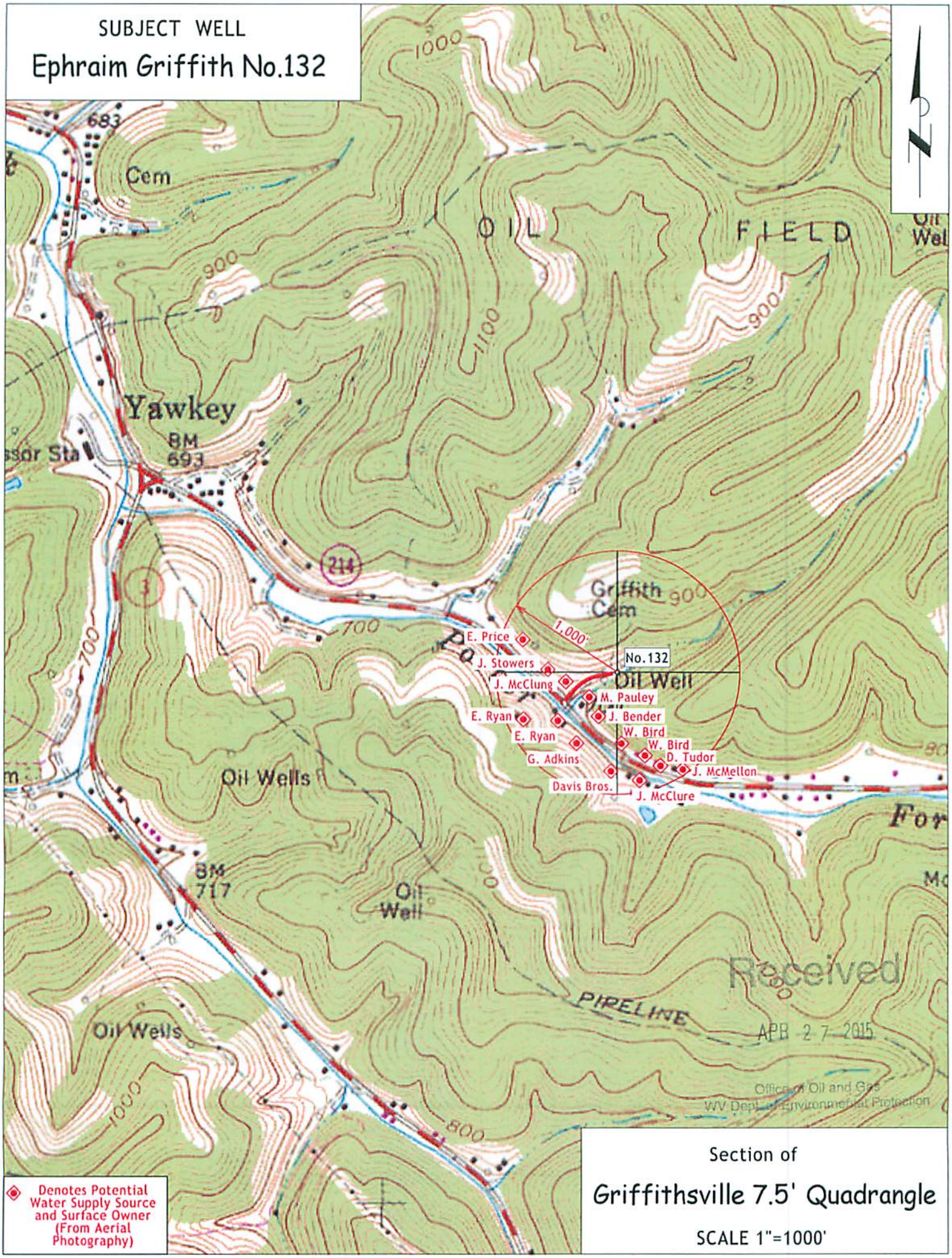
SEE PAGE 1 FOR RECLAMATION PLAN FROM PT. (A) TO THE PROPOSED LOCATION



4303483S

SUBJECT WELL

Ephraim Griffith No.132



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

Section of

Griffithsville 7.5' Quadrangle

SCALE 1"=1000'

293-5840
0543

4303483S

(BOT. HL: LON:-81°56'59.0")

LON: -81°57'06.2" 10070'

LAT:38°15'00"

LON:81°55'00"

10760'

LAT:38°13'13.6" (BOTTOM HOLE: LAT:38°13'17.4")

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 adjoiners 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.

4 - Existing well spots from HGE or Seneca Tech, Inc. data

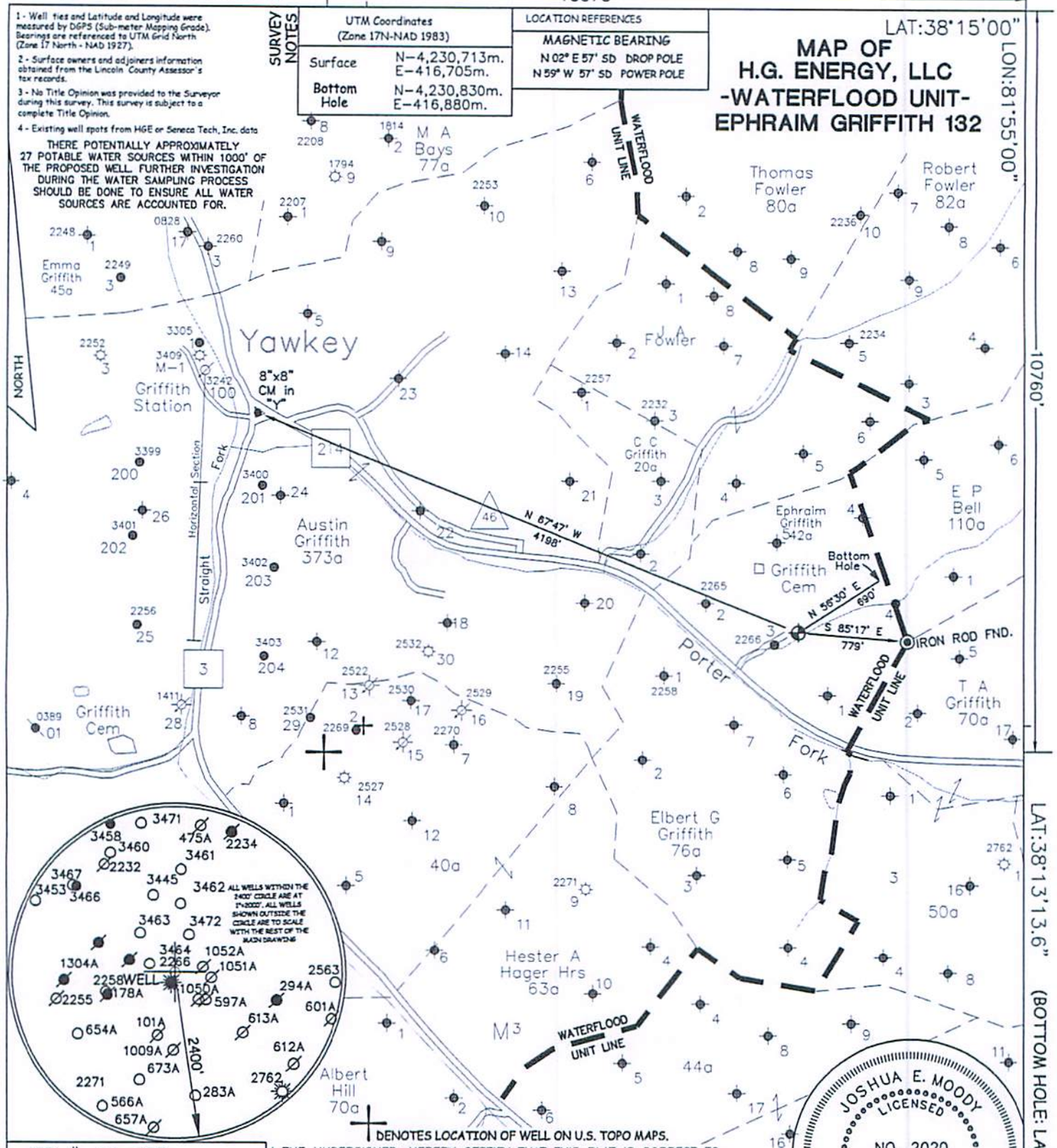
THERE POTENTIALLY APPROXIMATELY 27 POTABLE WATER SOURCES WITHIN 1000' OF THE PROPOSED WELL. FURTHER INVESTIGATION DURING THE WATER SAMPLING PROCESS SHOULD BE DONE TO ENSURE ALL WATER SOURCES ARE ACCOUNTED FOR.

UTM Coordinates (Zone 17N-NAD 1983)	
Surface	N-4,230,713m. E-416,705m.
Bottom Hole	N-4,230,830m. E-416,880m.

LOCATION REFERENCES

MAGNETIC BEARING
N 02° E 57' SD DROP POLE
N 59° W 57' SD POWER POLE

MAP OF H.G. ENERGY, LLC -WATERFLOOD UNIT- EPHRAIM GRIFFITH 132



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

JOB # 14-023
DRAWING # 15HG LC 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 DEPTARTMENT OF ENVIRONMENTAL PROTECTION.

JOSHUA E. MOODY LICENSED NO. 2020 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

STATE OF WEST VIRGINIA MONTANI SEMPER LIBERI

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

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION OFFICE OF OIL AND GAS

DATE 3/10/15
OPERATOR'S WELL
EPHRAIM GRIFFITH # 132

WELL TYPE: OIL ___ GAS ___ LIQUID INJECTION X WASTE DISPOSAL ___ HORIZONTAL ___
(IF "GAS") PRODUCTION ___ STORAGE ___ DEEP ___ SHALLOW ___
LOCATION: ELEVATION 725' WATERSHED PORTER FORK
DISTRICT DUVAL COUNTY LINCOLN
QUADRANGLE GRIFFITHSVILLE 7.5'

API WELL # 47 - 043 - 03483S
STATE COUNTY PERMIT

SURFACE OWNER JASON & ASHLEY BENDER ACREAGE 152.13 ACRES +/-
OIL & GAS ROYALTY OWNER HG ENERGY, LLC ET AL LEASE ACREAGE 42 ACRES +/-
PROPOSED WORK: DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___
OTHER PHYSICAL CHANGE IN WELL (SPECIFY) WELL WILL BE DRILLED DIRECTIONALLY (N 56°30' E 690')
PLUG & ABANDON ___ CLEAN OUT & REPLUG ___
TARGET FORMATION BEREA ESTIMATED DEPTH TVD=2,370' MD=2,942'
WELL OPERATOR H.G. ENERGY, LLC DESIGNATED AGENT D. WHITE
ADDRESS 5260 DuPONT ROAD ADDRESS 5260 DuPONT ROAD
PARKERSBURG, WV 26101 PARKERSBURG, WV 26101

COUNTY NAME PERMIT

FORM WW-6 LEASE # 71091-50

(BOT. HL: LON:-81°56'59.0")

LON: -81°57'06.2" — 10070'

LAT:38°15'00"

LON:81°55'00"

10760'

LAT:38°13'13.6" (BOTTOM HOLE: LAT:38°13'17.4")

MAP OF H.G. ENERGY, LLC -WATERFLOOD UNIT- EPHRAIM GRIFFITH 132

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 adjoiners 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.

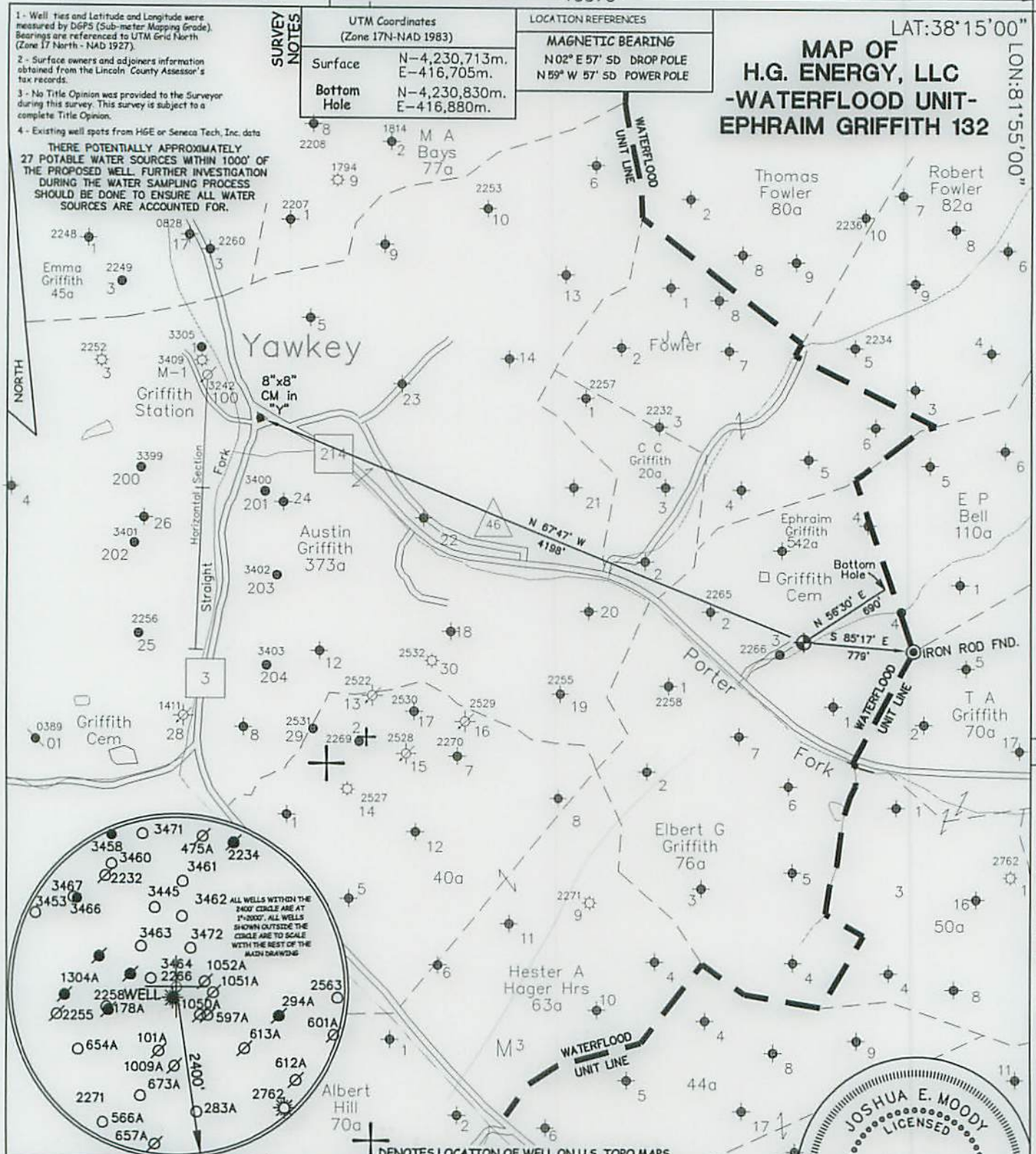
4 - Existing well spots from HGE or Seneca Tech, Inc. data

THERE POTENTIALLY APPROXIMATELY 27 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.

UTM Coordinates (Zone 17N-NAD 1983)	
Surface	N-4,230,713m. E-416,705m.
Bottom Hole	N-4,230,830m. E-416,880m.

LOCATION REFERENCES

MAGNETIC BEARING
N 02° E 57' SD DROP POLE
N 59° W 57' SD POWER POLE



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

JOB # 14-023
DRAWING # 15HG LC 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 DEPTARTMENT OF ENVIRONMENTAL PROTECTION.

JOSHUA E. MOODY LICENSED NO. 2020 STATE OF WEST VIRGINIA PROFESSIONAL SURVEYOR

JOSHUA E. MOODY, P.S. 2020

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS

MOODY LAND SURVEYING, LLC
ST. MARYS, WV 26170

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION OFFICE OF OIL AND GAS

DATE 3/10/15
OPERATOR'S WELL EPHRAIM GRIFFITH # 132

WELL TYPE: OIL ___ GAS ___ LIQUID INJECTION X WASTE DISPOSAL ___ HORIZONTAL ___
(IF "GAS") PRODUCTION ___ STORAGE ___ DEEP ___ SHALLOW ___
LOCATION: ELEVATION 725' WATERSHED PORTER FORK
DISTRICT DUVAL COUNTY LINCOLN
QUADRANGLE GRIFFITHSVILLE 7.5'

API WELL # 47 - 43 - 03483S
STATE COUNTY PERMIT

SURFACE OWNER JASON & ASHLEY BENDER ACREAGE 152.13 ACRES +/-
OIL & GAS ROYALTY OWNER HG ENERGY, LLC ET AL LEASE ACREAGE 42 ACRES +/-
PROPOSED WORK: DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___
OTHER PHYSICAL CHANGE IN WELL (SPECIFY) WELL WILL BE DRILLED DIRECTIONALLY (N 56°30' E 690')
PLUG & ABANDON ___ CLEAN OUT & REPLUG ___
TARGET FORMATION BEREA ESTIMATED DEPTH TVD=2,370' MD=2,942'
WELL OPERATOR H.G. ENERGY, LLC DESIGNATED AGENT D. WHITE
ADDRESS 5260 DuPONT ROAD ADDRESS 5260 DuPONT ROAD
PARKERSBURG, WV 26101 PARKERSBURG, WV 26101

COUNTY NAME PERMIT

FORM WW-6 LEASE # 71091-50

FORM WW-6

LEASE # 7109-50

PARKERSBURG, WV 26101

PARKERSBURG, WV 26101

ADDRESS 2260 DUPONT ROAD

ADDRESS 2260 DUPONT ROAD

WELL OPERATOR H.G. ENERGY, LLC

DESIGNATED AGENT D. WHITE

TARGET FORMATION BEREA

ESTIMATED DEPTH TVD=2,370' MD=2,942'

PLUG & ABANDON ___ CLEAN OUT & REPLUG ___

OTHER PHYSICAL CHANGE IN WELL (SPECIFY) WELL WILL BE DRILLED DIRECTIONALLY (N 56°30' E 690')

STIMULATE X PLUG OFF OLD FORMATION ___ PERFORATE NEW FORMATION ___

PROPOSED WORK: DRILL X CONVERT ___ DRILL DEEPER ___ REDRILL ___ FRACTURE OR

OIL & GAS ROYALTY OWNER HG ENERGY, LLC ET AL LEASE ACREAGE 42 ACRES +/-

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QUADRANGLE GRIFFITHSVILLE 7.5'

DISTRICT DUVAL COUNTY LINCOLN

STATE 47 COUNTY 43 PERMIT 03783

API WELL #

LOCATION: ELEVATION 725' WATERSHED PORTER FORK

(IF "GAS") PRODUCTION ___ STORAGE ___ DEEP ___ SHALLOW ___

WELL TYPE: OIL ___ GAS ___ LIQUID INJECTION X WASTE DISPOSAL ___ HORIZONTAL ___

COUNTY NAME

PERMIT