**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: 47-4303480, 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: EMMA GRIFFITH 136
Farm Name: PARKER, LINDA & LIONEL , BRU
**API Well Number: 47-4303480**
**Permit Type: Secondary Recovery Well**
Date Issued: 06/30/2015

**Promoting a healthy environment.**

4303480S

# 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.

4303480S

FORM WW-3 (B)
1/12

1) Date: 04/22/2015
2) Operator's Well No. Emma Griffith 136
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: 910' Watershed: Straight 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 Ralph Triplett
Address 5539 McClellan Hwy
Branchland, WV 25506
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 2922 Feet (top) to 2938 Feet (bottom)
13) Estimated Depth of Completed Well, (or actual depth of existing well): 3157 TMD Feet
14) Approximate water strata depths: Fresh 310 Feet Salt 1160 Feet
15) Approximate coal seam depths: 360
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 Size | Grade | Weight per ft. | New | Used | FOOTAGE INTERVALS For Drilling | Left In Well | CEMENT FILL-UP OR SACKS (CU. FT.) | PACKERS |
|---|---|---|---|---|---|---|---|---|---|
| Conductor | | | | | | | | | Kinds RDT 04/23/15 |
| Fresh Water | 7" | LS | 17# | X | | 460' | 460' | CTS | |
| Coal | | | | | | | | | Sizes |
| Intermediate | | | | | | | | | 2.375" x 4.5" |
| Production | 4 1/2" | J-55 | 10.5# | X | | 3107' | 3107' | 150 sks | Depths set |
| Tubing | 2 3/8" | J-55 | 4.6# | X | | 2722' | 2722' | | 2590' |
| Liners | | | | | | | | | Perforations |
| | | | | | | | | | Top Bottom |
| | | | | | | | | | |
| | | | | | | | | | |

24) APPLICANT'S OPERATING RIGHTS were acquired from JC Lenhart, et ux
by deed / lease X / other contract / dated ~~00/00/1953~~ 4/16/1952 of record in the
Lincoln County Clerk's office in lease Book 139 Page 459

Received
APR 27 2015
Office of Oil and Gas
WV Dept. of Environmental Protection

4303480S

CK # 3007
$650.00

FORM WW-3 (A)
1/12

1) Date: April 21, 2015
2) Operator's Well No. Emma Griffith 136
3) API Well No.: 47 - ___ - ___
State County Permit
4) UIC Permit No. UIC2R04301AP

# 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 Lionel & Linda Parker
Address 5008 Straight Fork Road
Griffithsville, WV 25521
(b) Name Joshua Brumfield
Address 31 Vandalia Drive
Yawkey, WV 25573
(c) Name
Address

6) Inspector Ralph Triplett
Address 5539 McClellan Hwy
Branchland, WV 25506
Telephone 304-389-0350

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

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APR 27 2015

Office of Oil and Gas
WV Dept. of Environmental Protection

4303480S

WW-2B1
(5-12)

Well No. Emma Griffith 136

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 -

Received

APR 27 2015

Office of Oil and Gas
WV Dept. of Environmental Protection

4303480S

WW-2B1
Page 2 - Continued

Well No. Emma Griffith 136

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:**

* Joshua Brumfield
  31 Vandalia Drive
  Yawkey, WV 25573

* David Brumfield
  5000 Straight Fork Road
  Griffithsville, WV 25521

* Lionel & Linda Parker
  5008 Straight Fork Road
  Griffithsville, WV 25521

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APR 27 2015

Office of Oil and Gas
WV Dept. of Environmental Protection

4303480S

WW-9
Rev. 5/10

Page 459 of _____
API Number 47 - _____ - _____
Operator's Well No. Emma Griffith 136

**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 Straight Fork Quadrangle Griffithsville 7.5'

Elevation 910' 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.

Received
APR 27 2015
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 21th day of April, 2015

S. Dianne Dulaney
Notary Public

My commission expires Oct. 4, 2016

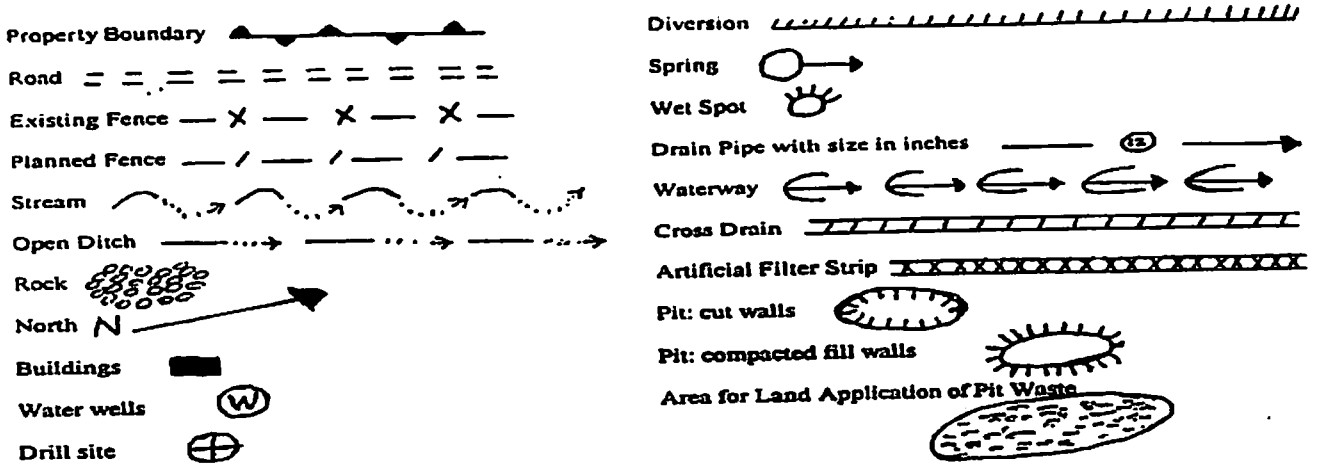
OFFICIAL SEAL
NOTARY PUBLIC
STATE OF WEST VIRGINIA
S. DIANNE DULANEY
5260 Dupont Road
Parkersburg, West Virginia 26101
My Commission Expires Oct. 4, 2016

4303480S

Form WW-9

Operator's Well No. Emma Griffith 136

LEGEND




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.

Received
APR 27 2015
Office of Oil and Gas
WV Dept. of Environmental Protection

Plan Approved by: Ralph D. Triplett

Comments: _____

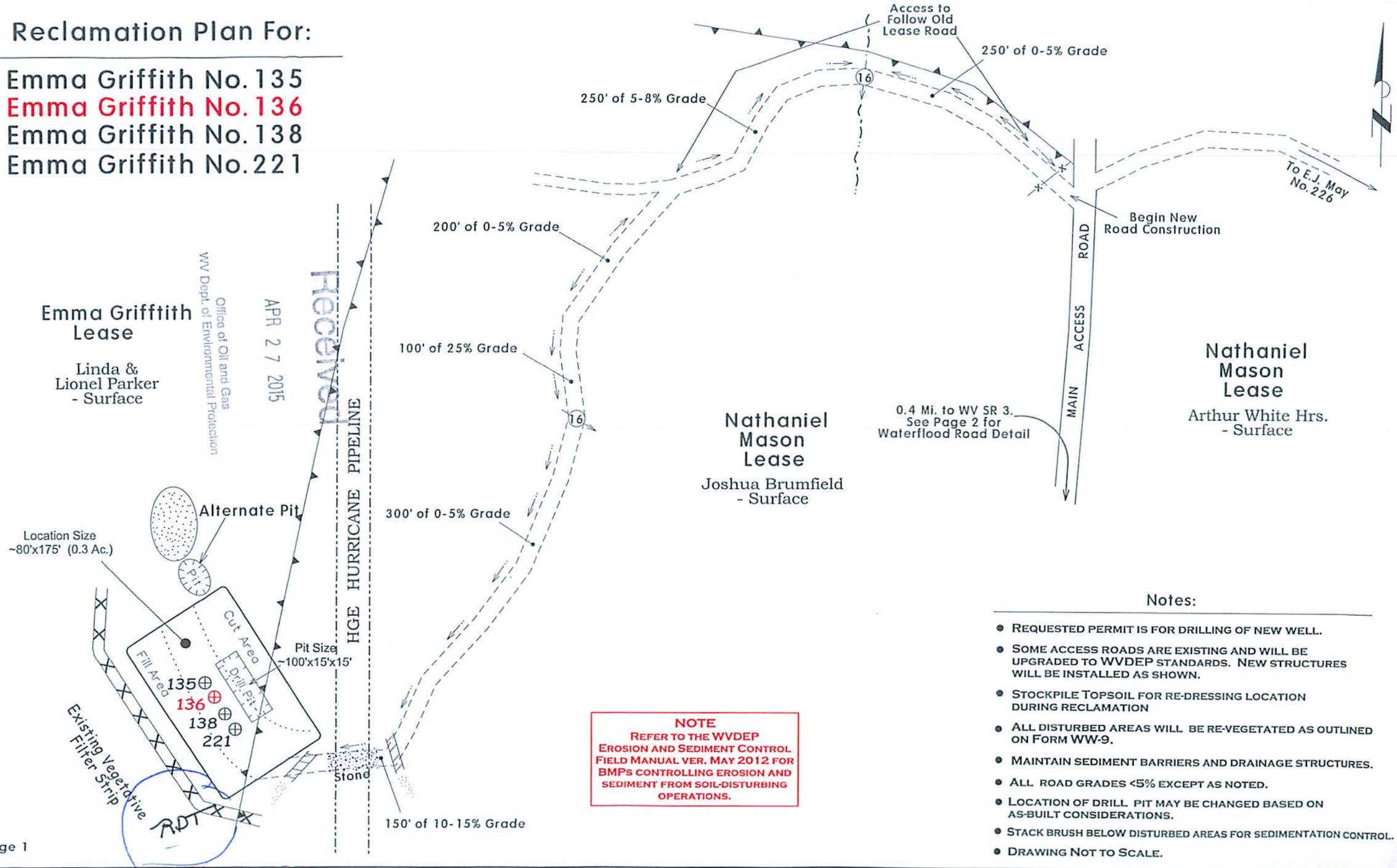
Title: District Inspector Date: April 23, 2015

Field Reviewed? (Lincoln) Yes ( ) No

4703448055

# Reclamation Plan For:

Emma Griffith No. 135
Emma Griffith No. 136
Emma Griffith No. 138
Emma Griffith No. 221

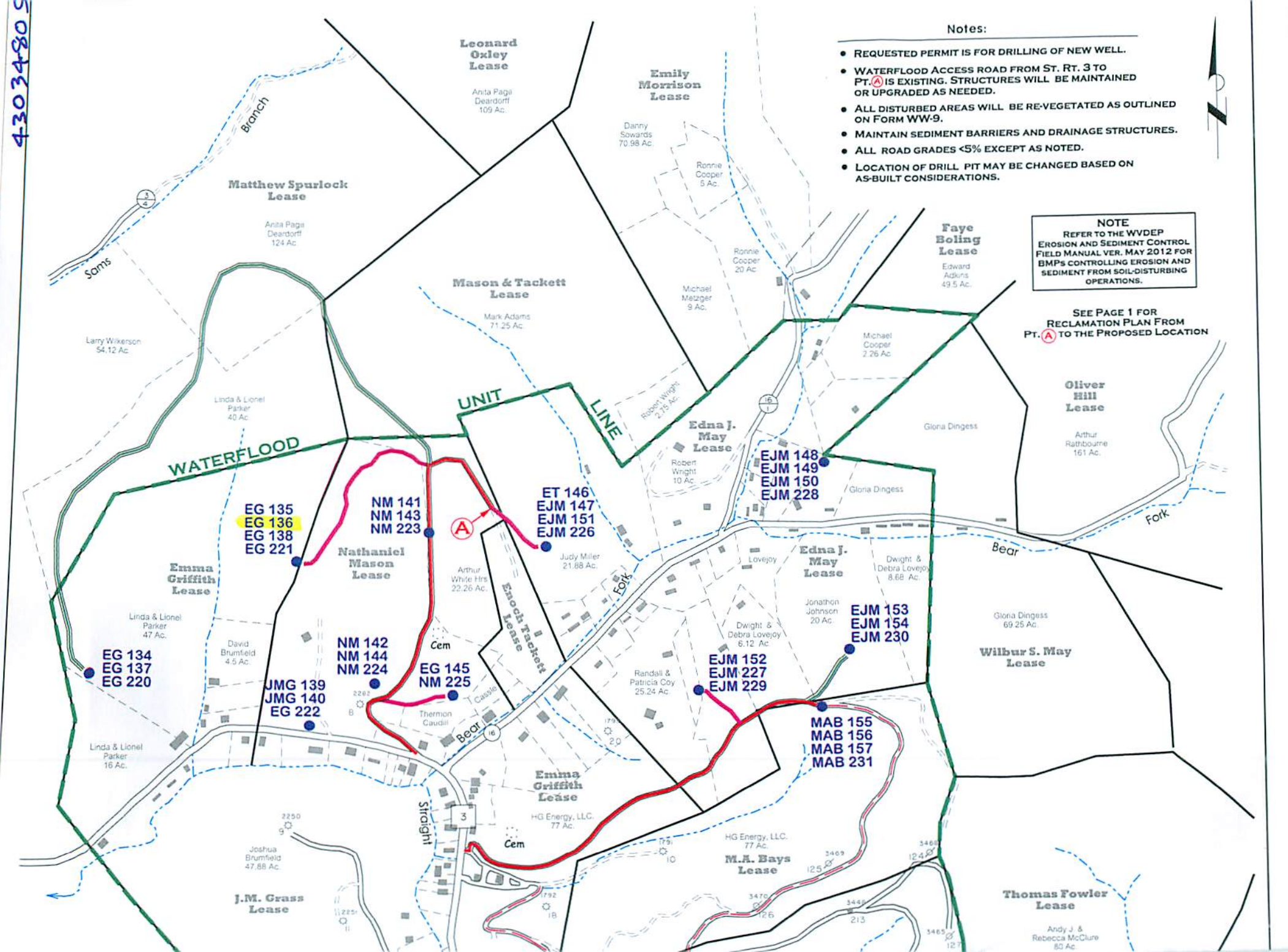


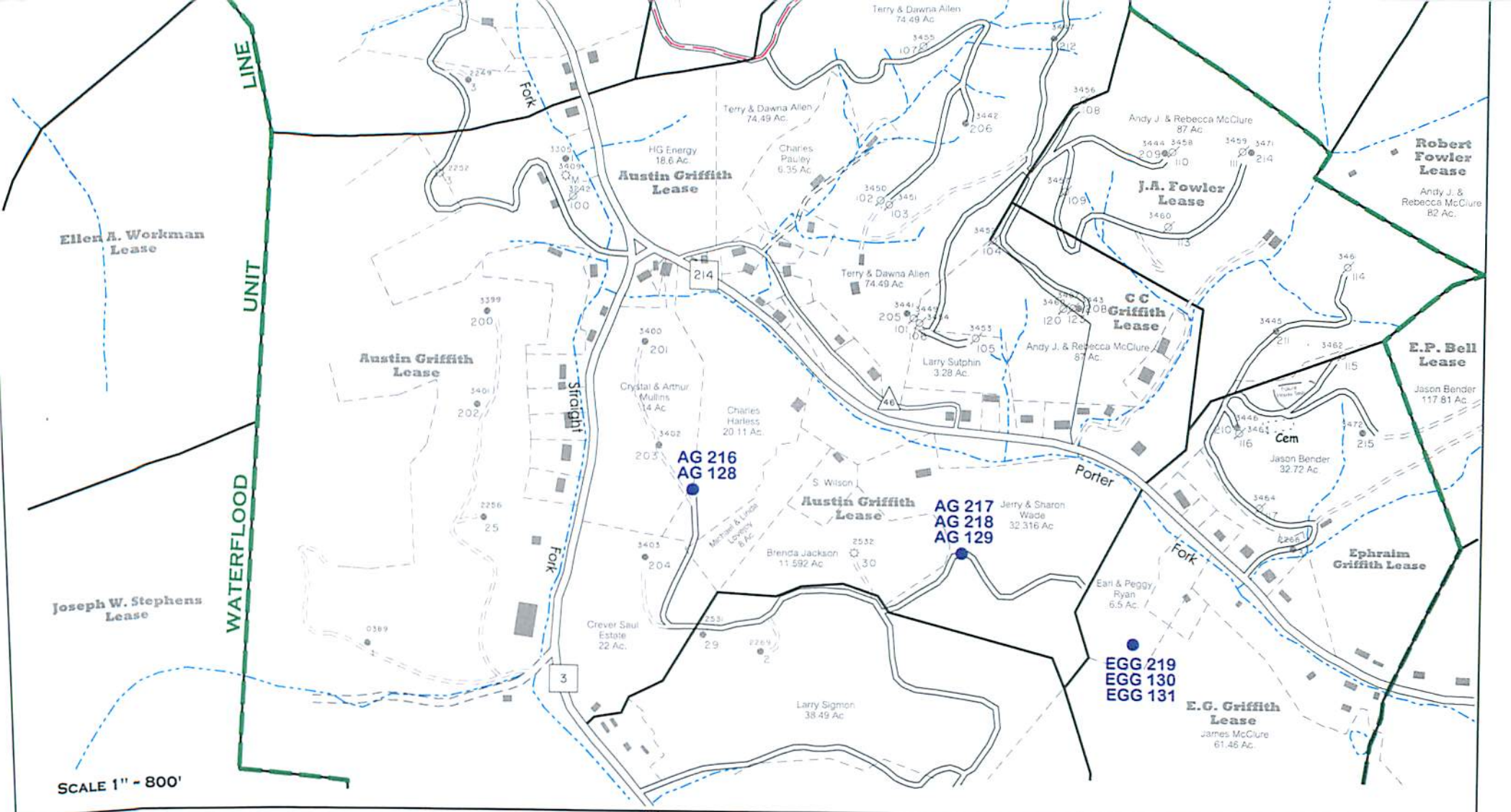

**NOTE**
REFER TO THE WVDEP EROSION AND SEDIMENT CONTROL FIELD MANUAL VER. MAY 2012 FOR BMPS CONTROLLING EROSION AND SEDIMENT FROM SOIL-DISTURBING OPERATIONS.

## Notes:

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

4303480 S


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
Leonard Oxley Lease
Anita Page Deardorff 109 Ac.
Emily Morrison Lease
Danny Sowards 70.98 Ac.
Ronnie Cooper 5 Ac.
Matthew Spurlock Lease
Anita Page Deardorff 124 Ac.
Branch
Sams
Faye Boling Lease
Edward Adkins 49.5 Ac.
Ronnie Cooper 20 Ac.
Michael Metzger 9 Ac.
Mason & Tackett Lease
Mark Adams 71.25 Ac.
Larry Wilkerson 54.12 Ac.
Michael Cooper 2.26 Ac.
Oliver Hill Lease
Arthur Rathbourne 161 Ac.
Linda & Lionel Parker 40 Ac.
UNIT
LINE
WATERFLOOD
Robert Wright 2.75 Ac.
Edna J. May Lease
Robert Wright 10 Ac.
Gloria Dingess
EJM 148
EJM 149
EJM 150
EJM 228
EG 135
EG 136
EG 138
EG 221
NM 141
NM 143
NM 223
A
ET 146
EJM 147
EJM 151
EJM 226
Judy Miller 21.88 Ac.
Nathaniel Mason Lease
Arthur White Hrs 22.26 Ac.
Enoch Tackett Lease
Fork
Bear
Lovejoy
Edna J. May Lease
Dwight & Debra Lovejoy 8.68 Ac.
Emma Griffith Lease
Linda & Lionel Parker 47 Ac.
David Brumfield 4.5 Ac.
EG 134
EG 137
EG 220
NM 142
NM 144
NM 224
EG 145
NM 225
Cem
Cassie
Thermon Caudill
JMG 139
JMG 140
EG 222
Jonathon Johnson 20 Ac.
EJM 153
EJM 154
EJM 230
Dwight & Debra Lovejoy 6.12 Ac.
Randall & Patricia Coy 25.24 Ac.
EJM 152
EJM 227
EJM 229
Gloria Dingess 69.25 Ac.
Wilbur S. May Lease
MAB 155
MAB 156
MAB 157
MAB 231
Linda & Lionel Parker 16 Ac.
Straight
Emma Griffith Lease
HG Energy, LLC. 77 Ac.
Joshua Brumfield 47.88 Ac.
J.M. Grass Lease
M.A. Bays Lease
Thomas Fowler Lease
Andy J. & Rebecca McClure 80 Ac.




# GRIIFTHSVILLE WATERFLOOD

Lincoln County, W.Va.

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

## 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

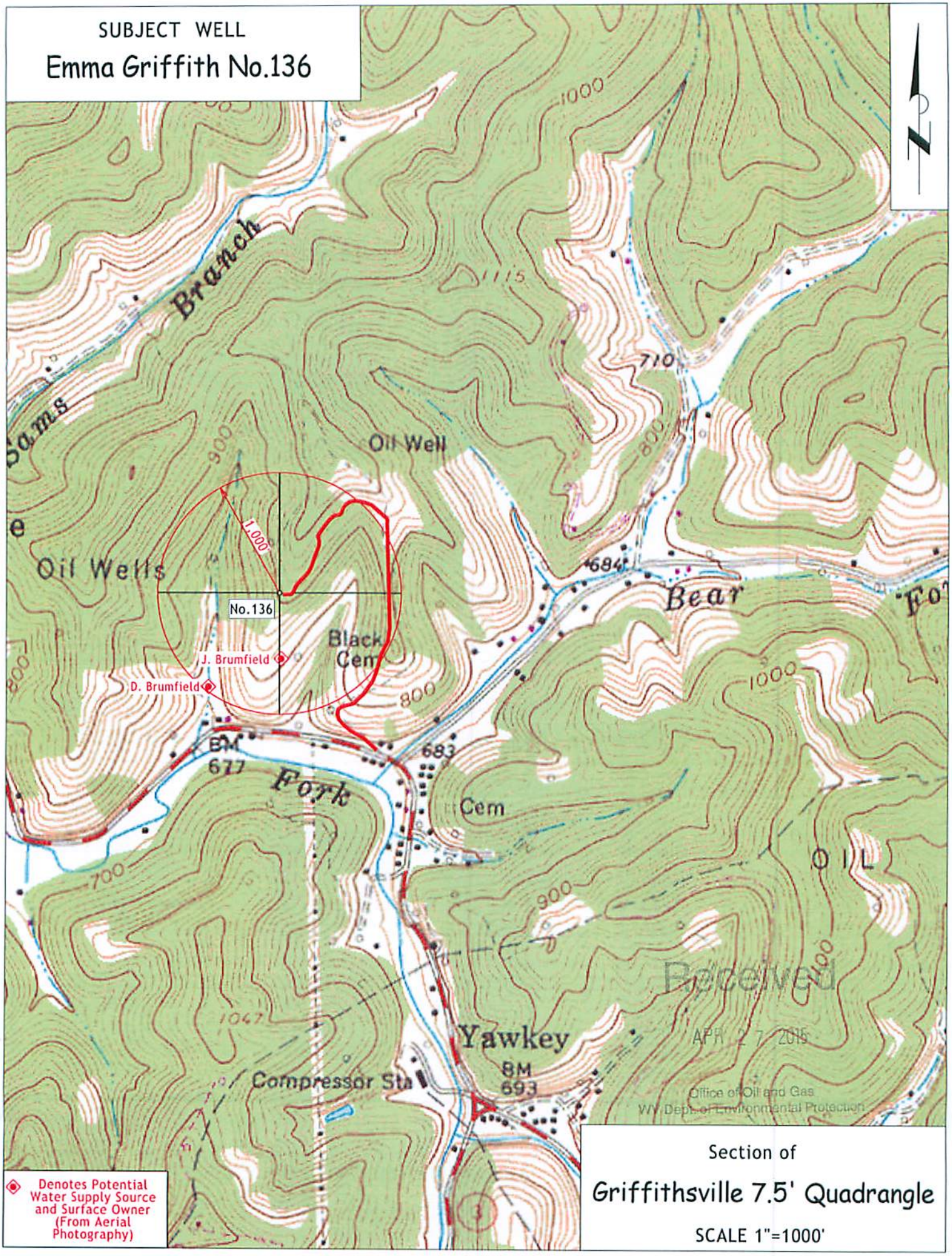
## LEGEND

- 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

4303405

SUBJECT WELL

# Emma Griffith No.136




Received
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Office of Oil and Gas
WV Dept. of Environmental Protection

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

Section of

Griffithsville 7.5' Quadrangle

SCALE 1"=1000'

4303480S

(BOT. HL: LON:-81°58'14.4") LON: -81°58'16.7" 3720'

LAT:38°15'00"

LON:81°57'30" 4975'

LAT:38°14'10.8" (BOTTOM HOLE: LAT:38°14'17.5")

# MAP OF H.G. ENERGY, LLC -WATERFLOOD UNIT- EMMA GRIFFITH 136

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.

| UTM Coordinates (Zone 17N-NAD 1983) | |
|---|---|
| Surface | N-4,232,494m. E-415,010m. |
| Bottom Hole | N-4,232,700m. E-415,066m. |

| LOCATION REFERENCES |
|---|
| MAGNETIC BEARING |
| S 11° W 107.0' 24" W.O. |
| N 78° W 96.5' 8" R.O. |

THERE POTENTIALLY APPROXIMATELY 2 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.

NORTH

WATERFLOOD UNIT LINE

N 15°15' E 700'

Bottom Hole

N 80°21' E 3618'

IRON ROD FND.

S 56°30' W 2078'

30" B.O. HACKED

Mathew Spurlock 222a

Mason & Tackett 44a

Emily Morrison

John Morrison 8a

Fay Bolling 49.5a

Nathaniel Mason 72a

(Emma) H C Griffith Hrs 68a

Octavia Hager 20a

Black Cem

Enoch Tackett 18a

Edna J May 149a

Wilbur S. May 56a

Bear Fork

Emma Griffith 45a

Straight Fork

Cem

A G Grass 155a

J M Grass 90a

M A Bays 77a

T Fowler 80a

Austin Griffith 373a

JA Fowler

Yawkey

Griffith Station

Horizontal Section

C C Griffith 20a

ALL WELLS WITHIN THE 2400' CIRCLE ARE AT 1"=2000'. ALL WELLS SHOWN OUTSIDE THE CIRCLE ARE TO SCALE WITH THE REST OF THE MAIN DRAWING

WELL

2400'

WATERFLOOD UNIT LINE

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

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

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, P.S. 2020

DATE 3/10/15

OPERATOR'S WELL EMMA GRIFFITH # 136

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

WELL TYPE: OIL ___ GAS ___ LIQUID INJECTION X WASTE DISPOSAL ___ HORIZONTAL ___
(IF "GAS") PRODUCTION ___ STORAGE ___ DEEP ___ SHALLOW ___
LOCATION: ELEVATION 910' WATERSHED STRAIGHT FORK
DISTRICT DUVAL COUNTY LINCOLN
QUADRANGLE GRIFFITHSVILLE 7.5'

API WELL # 47 - 043 - 03480S
STATE COUNTY PERMIT

SURFACE OWNER LINDA & LIONEL PARKER/JOSHUA BRUMFIELD ACREAGE 47 AC.+/- & 42.72 AC.+/-
OIL & GAS ROYALTY OWNER H.G. ENERGY LLC et al LEASE ACREAGE 113 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 15°15' E 700')
PLUG & ABANDON ___ CLEAN OUT & REPLUG ___
TARGET FORMATION BEREA ESTIMATED DEPTH TVD=2,575' MD=3,157'
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 # 2734-00

(BOT. HL: LON:-81°58'14.4") LON: -81°58'16.7"

3720'

LAT:38°15'00"

LON:81°57'30"

4975'

LAT:38°14'10.8" (BOTTOM HOLE: LAT:38°14'17.5")

# MAP OF H.G. ENERGY, LLC -WATERFLOOD UNIT- EMMA GRIFFITH 136

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.

| UTM Coordinates (Zone 17N-NAD 1983) | |
|---|---|
| Surface | N-4,232,494m. E-415,010m. |
| Bottom Hole | N-4,232,700m. E-415,066m. |

| LOCATION REFERENCES | |
|---|---|
| MAGNETIC BEARING | |
| S 11° W 107.0' | 24° W.O. |
| N 78° W 96.5' | 8° R.O. |

THERE POTENTIALLY APPROXIMATELY 2 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.

NORTH

WATERFLOOD UNIT LINE

IRON ROD FND.

Bottom Hole

N 15°15' E 700'

N 80°21' E 3818'

S 56°30' W 2078'

30" B.O. HACKED

Emily Morrison

John Morrison 8a

Fay Bolling 49.5a

Mason & Tackett 44a

Mathew Spurlock 222a

Nathaniel Mason 72a

(Emma) H C Griffith Hrs 68a

Octavia Hager 20a

Enoch Tackett 18a

Black Cem

Edna J May 149a

Wilbur S. May 75a

Bear Fork

Emma Griffith 45a

Straight Fork

Cem

A G Grass 155a

J M Grass 90a

M A Bays 77a

Fowler 80a

Austin Griffith 373a

JA Fowler

Yawkey

Griffith Station

Horizontal Section

C C Griffith 20a

ALL WELLS WITHIN THE 2400' CIRCLE ARE AT 1"=2000'. ALL WELLS SHOWN OUTSIDE THE CIRCLE ARE TO SCALE WITH THE REST OF THE MAIN DRAWING

WELL

2400'

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

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

JOB # 14-023

DRAWING # 15HG LC FOLDER

SCALE 1" = 1000'

MINIMUM DEGREE OF ACCURACY 1/200

PROVEN SOURCE OF ELEV. MAPPING GRADE GPS

WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION OFFICE OF OIL AND GAS

**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

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