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west virginia department of environmental protection

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

Earl Ray Tomblin , Governor  
Randy C. Huffman , Cabinet Secretary  
www.dep.wv.gov

Tuesday, September 06, 2016  
WELL WORK PERMIT  
Vertical / Secondary Recovery Well - 2

HG ENERGY, LLC  
5260 DUPONT ROAD

PARKERSBURG, WV 26101

Re: Permit approval for EDNA MAY 229  
47-043-03488-00-00

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: EDNA MAY 229  
Farm Name: COY, RANDALL & PATRICIA  
U.S. WELL NUMBER: 47-043-03488-00-00  
Vertical / Secondary Recovery Well - 2  
Date Issued: 9/6/2016

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

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1. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code §22-6-20, which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than fifty (50) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
2. Pursuant to 35 CSR 4-19.1.a, at the request of the surface owner all water wells or springs within 1000 feet of the proposed well that are actually utilized for human consumption, domestic animals or other general use shall be sampled and analyzed.
3. Pursuant to 35 CSR 4-19.1.c, if the operator is unable to sample and analyze any water well or spring with one thousand (1,000) feet of the permitted well location, the Office of Oil and Gas requires the operator to sample, at a minimum, one water well or spring located between one thousand (1,000) feet and two thousand (2,000) feet of the permitted well location.
4. All pits must be lined with a minimum of 20 mil thickness synthetic liner.
5. In the event of an accident or explosion causing loss of life or serious personal injury in or about the well or while working on the well, the well operator or its contractor shall give notice, stating the particulars of the accident or explosion, to the oil and gas inspector and the Chief within twenty-four (24) hours.
6. During the surface casing and cementing process, in the event cement does not return to the surface, or any other casing string that is permitted to circulate cement to the surface and does not return to the surface, the oil and gas inspector shall be notified within twenty-four (24) hours.
7. Well work activities shall not constitute a hazard to the safety of persons.
8. Operator shall provide the Office of Oil & Gas notification of the date that drilling commenced, 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](mailto:DEPOOGNotify@wv.gov) within 30 days of commencement of drilling.



State of West Virginia  
Department of Environmental Protection - Office of Oil and Gas  
Well Operator's Report of Well Work

API 47 - 043 - 03488 County LINCOLN District DUVAL  
Quad GRIFFITHSVILLE 7.5' Pad Name MAY, EDNA Field/Pool Name GRIFFITHSVILLE  
Farm name COY, RANDALL & PATRICIA Well Number 229  
Operator (as registered with the OOG) H.G. ENERGY LLC  
Address 5260 DuPONT ROAD City PARKERSBURG State WV Zip 26101

As Drilled location NAD 83/UTM Attach an as-drilled plat, profile view, and deviation survey  
Top hole Northing 4,232,186 M Easting 415,870 M  
Landing Point of Curve Northing \_\_\_\_\_ Easting \_\_\_\_\_  
Bottom Hole Northing \_\_\_\_\_ Easting \_\_\_\_\_

Elevation (ft) 960' GL Type of Well  New  Existing Type of Report  Interim  Final  
Permit Type  Deviated  Horizontal  Horizontal 6A  Vertical Depth Type  Deep  Shallow  
Type of Operation  Convert  Deepen  Drill  Plug Back  Redrilling  Rework  Stimulate  
Well Type  Brine Disposal  CBM  Gas  Oil  Secondary Recovery  Solution Mining  Storage  Other \_\_\_\_\_  
Type of Completion  Single  Multiple Fluids Produced  Brine  Gas  NGL  Oil  Other \_\_\_\_\_  
Drilled with  Cable  Rotary

Drilling Media Surface hole  Air  Mud  Fresh Water Intermediate hole  Air  Mud  Fresh Water  Brine  
Production hole  Air  Mud  Fresh Water  Brine  
Mud Type(s) and Additive(s)  
N/A

Date permit issued 6/29/15 Date drilling commenced 10/27/15 Date drilling ceased 10/29/15  
Date completion activities began 11/4/15 Date completion activities ceased 11/6/15  
Verbal plugging (Y/N) N Date permission granted \_\_\_\_\_ Granted by \_\_\_\_\_

Please note: Operator is required to submit a plugging application within 5 days of verbal permission to plug

Freshwater depth(s) ft None Open mine(s) (Y/N) depths None  
Salt water depth(s) ft 1170' Void(s) encountered (Y/N) depths None  
Coal depth(s) ft 565'- 572' Cavern(s) encountered (Y/N) depths None  
Is coal being mined in area (Y/N) N

RECEIVED  
Office of Oil and Gas  
JUN 30 2015  
Department of Environmental Protection Reviewed by: \_\_\_\_\_

API 47-043 - 03488

Farm name COY, RANDALL & PATRICIA

Well number 229

CASING STRINGS	Hole Size	Casing Size	Depth	New or Used	Grade wt/ft	Basket Depth(s)	Did cement circulate (Y/ N) * Provide details below*
Conductor	12 1/4"	11 5/8"	30'	Used	LS		Sand In
Surface	8 3/4"	7"	636'	New	LS	64'	Y
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	6 1/4"	4 1/2"	2598.7'	New	J-55		Y
Tubing							
Packer type and depth set							

Comment Details Circulated Est. 50 sks to surface on 7" surface cement job. Circulated Est. 13 sks to surface on 4 1/2" cement job.

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft <sup>3</sup> /sks)	Volume (ft <sup>3</sup> )	Cement Top (MD)	WOC (hrs)
Conductor							
Surface	Reg Neat	160	15.6	1.18	189	Surface	8
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	50:50 Pozmix	110/125	13.2/14.2	1.64/1.27	180/186	70'	8
Tubing							

Drillers TD (ft) 2630'      Loggers TD (ft) 2594'  
 Deepest formation penetrated Berea      Plug back to (ft) N/A  
 Plug back procedure N/A

Kick off depth (ft) 650'

Check all wireline logs run  
 caliper     density     deviated/directional     induction  
 neutron     resistivity     gamma ray     temperature     sonic

Well cored  Yes  No      Conventional      Sidewall      Were cuttings collected  Yes  No

DESCRIBE THE CENTRALIZER PLACEMENT USED FOR EACH CASING STRING  
20 Centralizers every 88 from bottom on 4 1/2", Centralizer placed mid string on 7"

WAS WELL COMPLETED AS SHOT HOLE  Yes  No      DETAILS \_\_\_\_\_

WAS WELL COMPLETED OPEN HOLE?  Yes  No      DETAILS \_\_\_\_\_

WERE TRACERS USED  Yes  No      TYPE OF TRACER(S) USED \_\_\_\_\_

WV Department  
 Environmental Protection

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Office of Oil and Gas

JUN 30 2013



WR-35  
Rev. 8/23/13

API 47- 043 - 03488 Farm name COY, RANDALL & PATRICIA Well number 229

PRODUCING FORMATION(S)	DEPTHS
Berea	2444'- 2466' TVD MD

Please insert additional pages as applicable.

GAS TEST  Build up  Drawdown  Open Flow OIL TEST  Flow  Pump

SHUT-IN PRESSURE Surface \_\_\_\_\_ psi Bottom Hole \_\_\_\_\_ psi DURATION OF TEST \_\_\_\_\_ hrs

OPEN FLOW Gas \_\_\_\_\_ mcfpd Oil \_\_\_\_\_ bpd NGL \_\_\_\_\_ bpd Water \_\_\_\_\_ bpd GAS MEASURED BY  Estimated  Orifice  Pilot

LITHOLOGY/ FORMATION	TOP DEPTH IN FT NAME TVD	BOTTOM DEPTH IN FT TVD	TOP DEPTH IN FT MD	BOTTOM DEPTH IN FT MD	DESCRIBE ROCK TYPE AND RECORD QUANTITY AND TYPE OF FLUID (FRESHWATER, BRINE, OIL, GAS, H <sub>2</sub> S, ETC)
Sand/Shale	0	565	0		
Pittsburgh Coal	565	572			
Sand/Shale	572	1730			
Big Lime	1730	1930			
Big Injun	1930	2034			
Shale	2034	2423			
Coffea Shale	2423	2444			
Berea	2444	2466			
Shale	2466	2630			
TD	2630				

Please insert additional pages as applicable.

Drilling Contractor Decker Drilling  
Address 11565 State Route 676 City Vincent State OH Zip 45784

Logging Company Weatherford International  
Address 11000 Performance PL City Youngstown State OH Zip 44502

Cementing Company Universal Services  
Address 14 Sewer Plant Rd City Buckhannon State WV Zip 26201

Stimulating Company Producers Service Corp.  
Address 109 South Graham Street City Zanesville State OH Zip 43701

Please insert additional pages as applicable.

Completed by Roger Heldman Telephone 304-420-1107  
Signature *[Signature]* Title Operations Manager JUN 10 2015

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Office of Oil and Gas





43034885

WW-9  
(5/16)

API Number 47 - 043 - 3488  
Operator's Well No. Edna Mays 229

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 Griffithville 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: \_\_\_\_\_

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

Proposed Disposal Method For Treated Pit Wastes:

- Land Application (if selected provide a completed form WW-9-GPP)
- Underground Injection ( UIC Permit Number \_\_\_\_\_)
- Reuse (at API Number \_\_\_\_\_)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain This is a well conversion, there shouldn't be any fluids encountered; if there are, they'll be hauled to a disposal site)

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

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.

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

-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 April 1, 2016, 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

**RECEIVED**  
**AUG 31 2016**

Company Official (Typed Name) Diane White

Company Official Title Agent

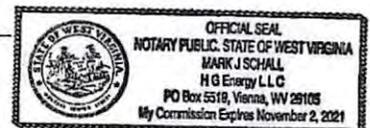
WV Department of  
Environmental Protection

Subscribed and sworn before me this 16th day of May, 2016

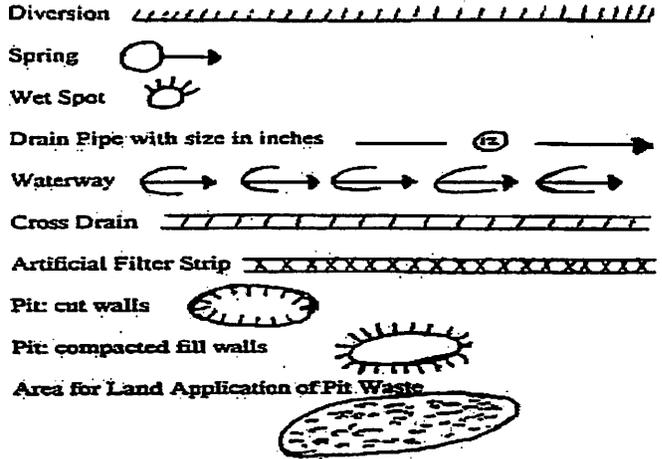
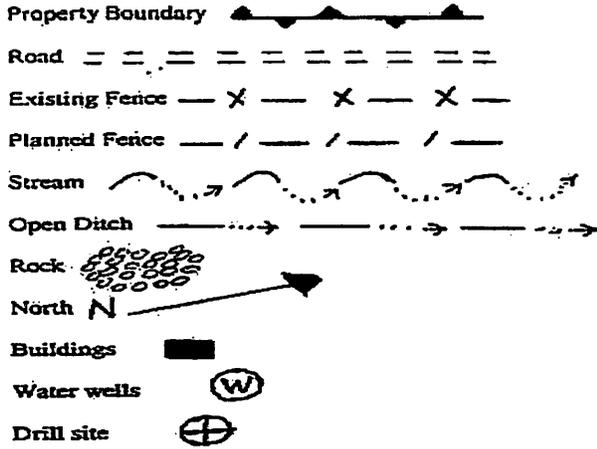
*[Handwritten Signature]*

Notary Public

My commission expires NOVEMBER 2ND, 2021



**LEGEND**



Proposed Revegetation Treatment: Acres Disturbed 1.0 acre Prevegetation pH \_\_\_\_\_

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer (10-20-20 or equivalent) 500 lbs/acre (500 lbs minimum)

Mulch Straw 2 Tons/acre

Seed Mixtures

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

**\*\* Sediment Control Must Be In Place At All Times \*\***

Attach:  
Drawing(s) of road, location, pit and proposed area for land application.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Jeffrey Smith

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

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Office of Oil and Gas

Title: Oil & Gas Inspector

Date: 6-18-2016

Field Reviewed?  (Lincoln) Yes  No

WV Department of  
Environmental Protection

# Reclamation Plan For:

## E.J. May No. 229 (47-043-3488)



**NOTE**  
Requested permit is for conversion of existing well drilled and reclaimed in 2015. No additional earthwork is anticipated and no pit will be used.

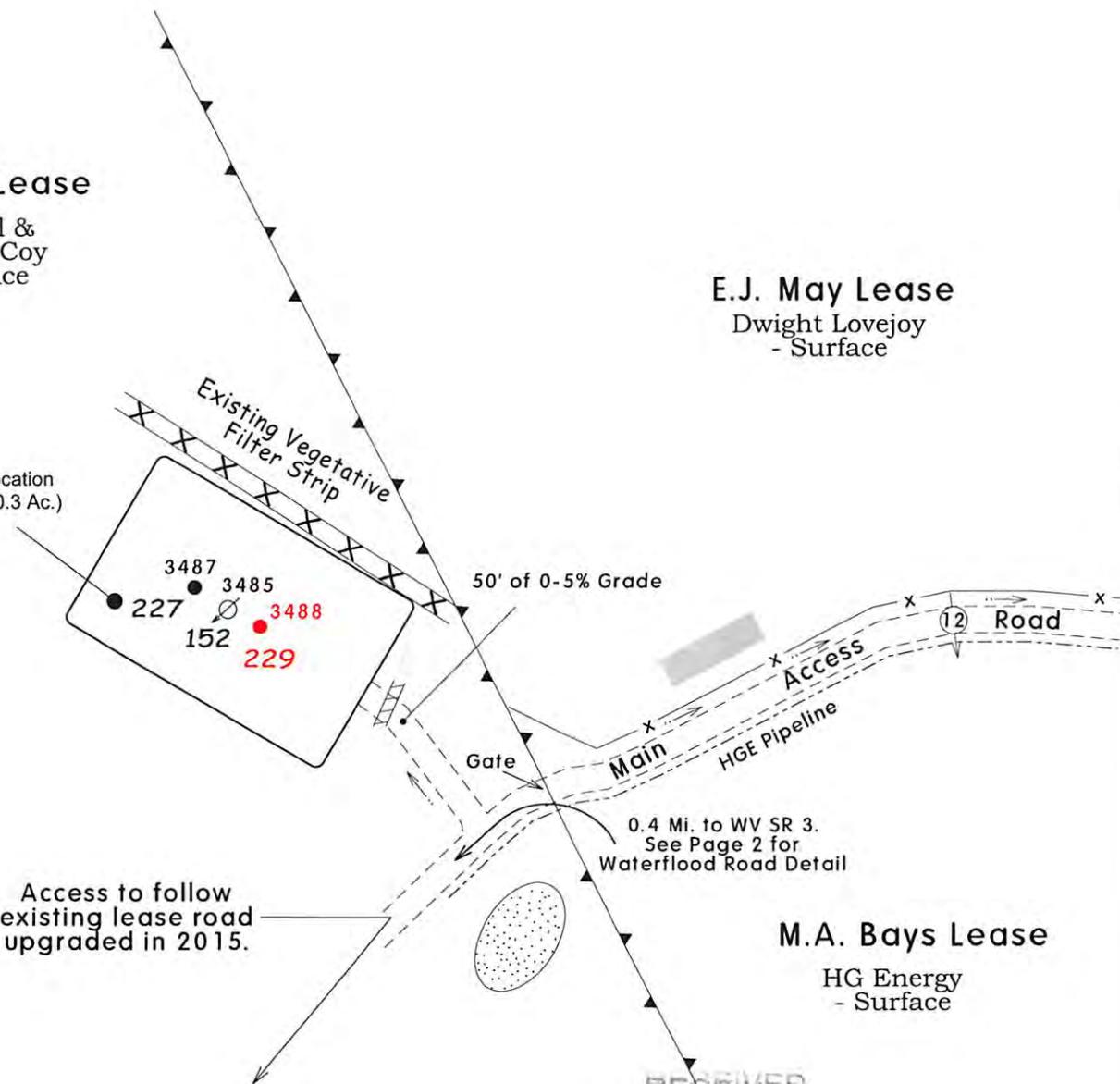
**E.J. May Lease**

Randall & Patricia Coy  
- Surface

**E.J. May Lease**

Dwight Lovejoy  
- Surface

Existing Location  
~80'x175' (0.3 Ac.)



Access to follow existing lease road upgraded in 2015.

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

**M.A. Bays Lease**

HG Energy  
- Surface

**Notes:**

- REQUESTED PERMIT IS FOR CONVERSION OF EXISTING WELL.
- ACCESS ROADS ARE EXISTING AND WILL BE MAINTAINED TO WVDEP STANDARDS.
- NO PIT WILL BE REQUIRED FOR WELL CONVERSION.
- ALL DISTURBED AREAS WILL BE RE-VEGETATED AS OUTLINED ON FORM WW-9.
- DRAWING NOT TO SCALE.

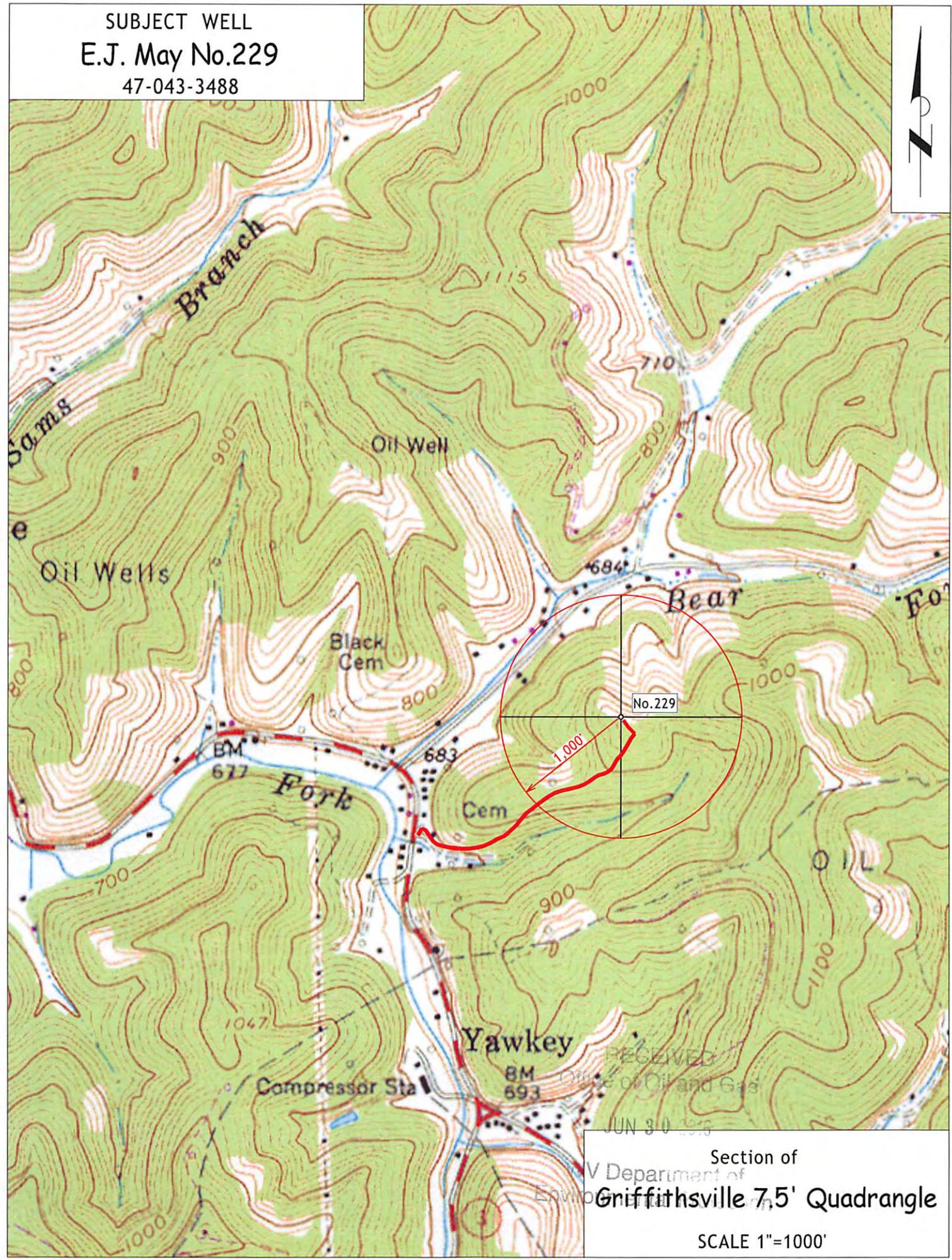
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JUN 30 2016

WV Dept  
Environment

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

SUBJECT WELL  
E.J. May No.229  
47-043-3488



Section of  
U.S. Department of  
Interior  
Geological Survey  
**Griffithsville 7.5' Quadrangle**

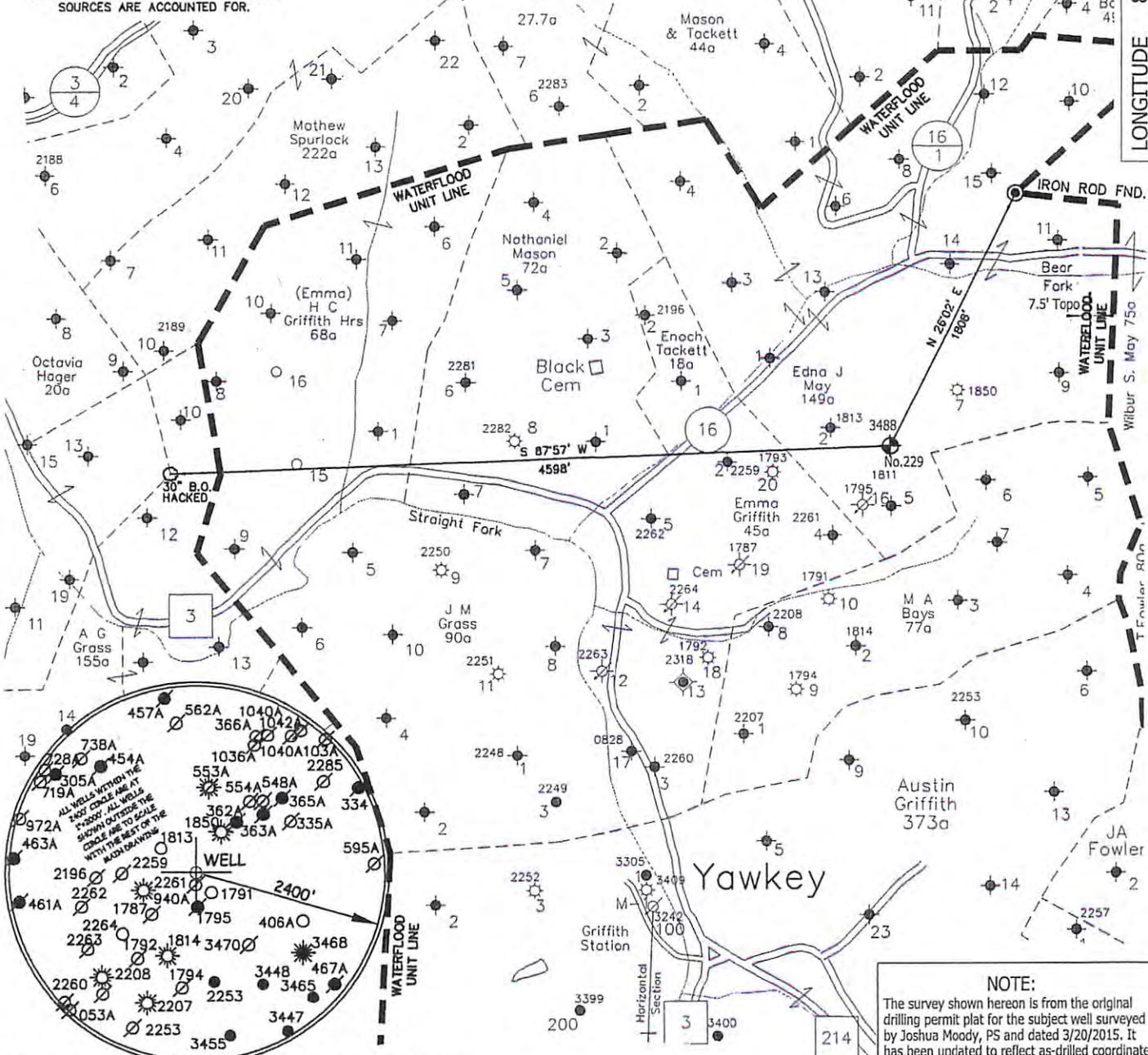
SCALE 1"=1000'

**EDNA MAY 229**

Well Coordinates (As-Drilled)  
 UTM (NAD83) - Meters  
 N - 4,232,186  
 E - 415,871

THERE POTENTIALLY APPROXIMATELY 24 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



**NOTE:**  
 The survey shown hereon is from the original drilling permit plat for the subject well surveyed by Joshua Moody, PS and dated 3/20/2015. It has been updated to reflect as-drilled coordinates and current surface ownership.

- 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

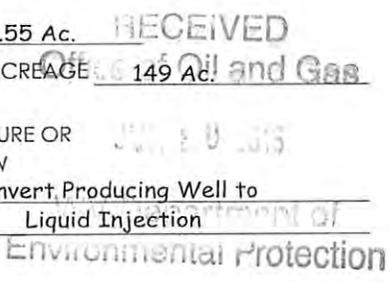


DATE May 12, 2016  
 FARM E.J. May No.229  
 API WELL NO. 47 - 043 - 03488 S

WELL TYPE: OIL \_\_\_ GAS \_\_\_ LIQUID INJECTION  WASTE DISPOSAL \_\_\_  
 (IF "GAS") PRODUCTION \_\_\_ STORAGE \_\_\_ DEEP \_\_\_ SHALLOW \_\_\_  
 LOCATION: ELEVATION 952' WATERSHED Bear Fork  
 DISTRICT Duval COUNTY Lincoln  
 QUADRANGLE Griffithsville 7.5'  
 SURFACE OWNER Randal & Patricia Coy ACREAGE 21.55 Ac.  
 OIL & GAS ROYALTY OWNER HG Energy, LLC., et al LEASE ACREAGE 149 Ac.  
 LEASE NO. 71128-50

PROPOSED WORK: DRILL \_\_\_ CONVERT  DRILL DEEPER \_\_\_ REDRILL \_\_\_ FRACTURE OR STIMULATE  PLUG OFF OLD FORMATION \_\_\_ PERFORATE NEW FORMATION \_\_\_ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) Convert Producing Well to Liquid Injection  
 PLUG AND ABANDON \_\_\_ CLEAN OUT AND REPLUG \_\_\_  
 TARGET FORMATION Berea ESTIMATED DEPTH 2,630' MD

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



EDNA MAY 229

Well Coordinates (As-Drilled)  
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E - 415,671

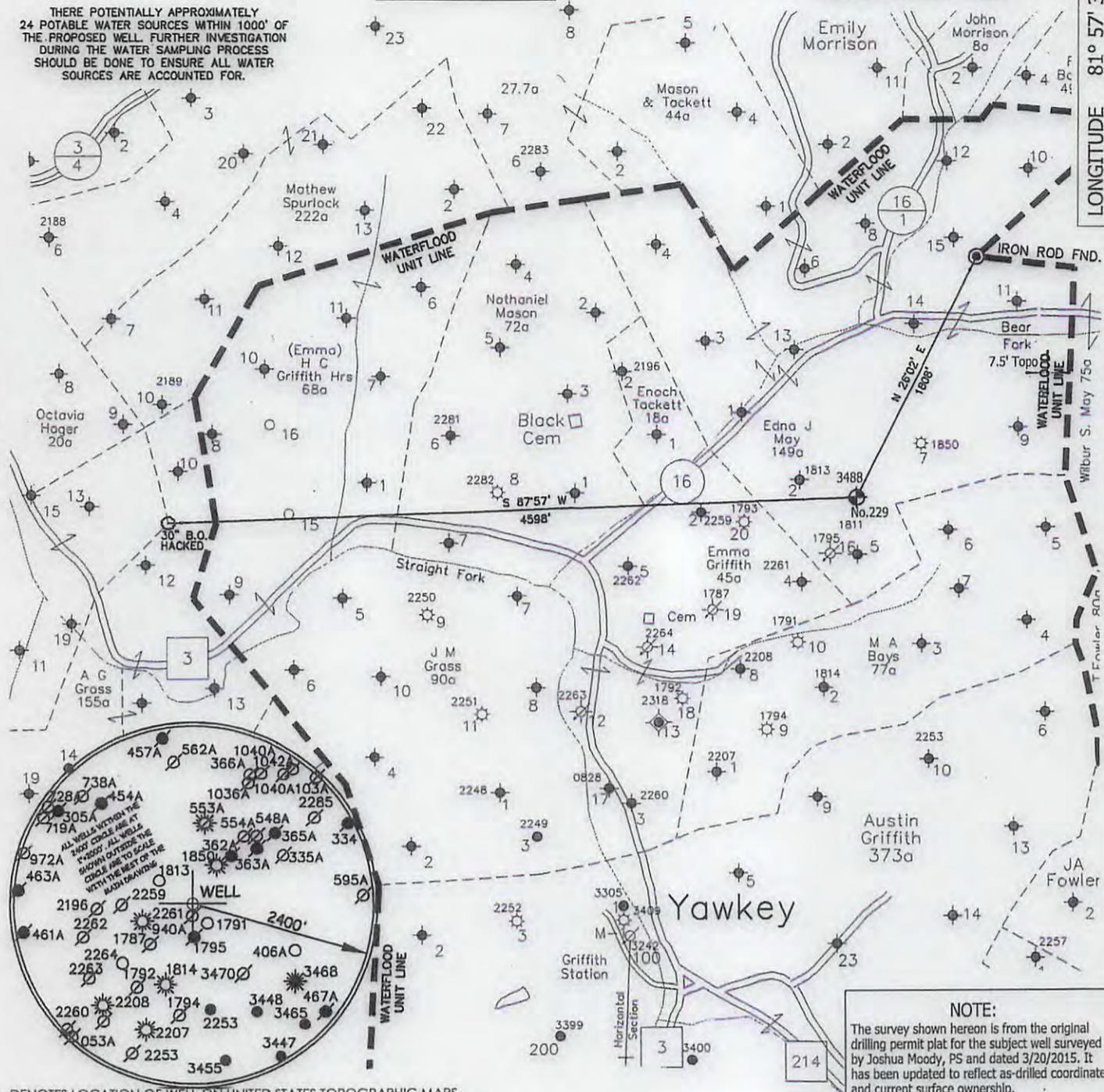
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North

LONGITUDE 81° 57' 30"

5,960'

Latitude: 38° 14' 01.1"

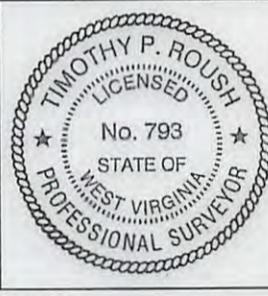


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(SIGNED) *Timothy P. Roush*  
TIMOTHY P. ROUSH PS 793



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



DATE May 12, 2016  
FARM E.J. May No.229  
API WELL NO. 47 - 043 - 03488 S

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WELL TYPE: OIL \_\_\_ GAS \_\_\_ LIQUID INJECTION X WASTE DISPOSAL \_\_\_  
(IF "GAS") PRODUCTION \_\_\_ STORAGE \_\_\_ DEEP \_\_\_ SHALLOW \_\_\_  
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PLUG AND ABANDON \_\_\_ CLEAN OUT AND REPLUG \_\_\_  
TARGET FORMATION Berea ESTIMATED DEPTH 2,630' MD  
WELL OPERATOR HG Energy LLC. DESIGNATED AGENT Diane White  
ADDRESS 5260 DuPont Road ADDRESS 5260 DuPont Road  
Parkersburg, WV 26101 Parkersburg, WV 26101