



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

Friday, September 13, 2019
WELL WORK PERMIT
Vertical / Convert

HG ENERGY, LLC
5260 DUPONT ROAD

PARKERSBURG, WV 26101

Re: Permit approval for E. J. MAY 226 REV
47-043-03591-00-00

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: E. J. MAY 226 REV
Farm Name: JUDY R. SMITH
U.S. WELL NUMBER: 47-043-03591-00-00
Vertical Convert
Date Issued: 9/13/2019

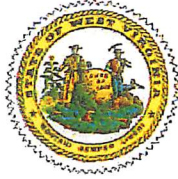
PERMIT CONDITIONS

West Virginia Code §22-6-11 allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

CONDITIONS

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

FORM WW-3 (B)
1/12



1) Date: 07/26/2019
 2) Operator's Well No. E J May 226
 3) API Well No.: 47 - 043 - 03591
 State County Permit
 4) UIC Permit No. UIC2R04300001AP

**STATE OF WEST VIRGINIA
 NOTICE OF LIQUID INJECTION OR WASTE DISPOSAL WELL WORK PERMIT APPLICATION
 FOR THE DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS**

5) WELL TYPE: Liquid Injection / Gas Injection (not storage) / Waste Disposal
 6) LOCATION: Elevation: 840' Watershed: Bear Fork
 District: Duval County Lincoln Quadrangle Griffithsville 7.5'
 7) WELL OPERATOR: HG Energy, LLC 8) DESIGNATED AGENT Diane White
 Address 5260 Dupont Road Address 5260 Dupont Road
Parkersburg, WV 26101 Parkersburg, WV 26101

9) OIL & GAS INSPECTOR TO BE NOTIFIED 10) DRILLING CONTRACTOR
 Name Jeffery Smith Name To Be Determined Upon Approval of Permit
 Address 5369 Big Tyler Road Address _____
Cross Lanes, WV 25313

11) PROPOSED WELL WORK Drill / Drill deeper / Redrill / Stimulate
 Plug off old formation / Perforate new formation Convert
 Other physical change in well (specify) Add 2 3/8" tubing on packer approximately 100' above Berea perforation

12) GEOLOGIC TARGET FORMATION Berea Depth 2334 Feet (top) to 2344 Feet (bottom)
 13) Estimated Depth of Completed Well, (or actual depth of existing well): 2440 Feet
 14) Approximate water strata depths: Fresh 125 Feet Salt 1050, 1080 Feet
 15) Approximate coal seam depths: 315', 385'
 16) Is coal being mined in the area? Yes No

17) Virgin reservoir pressure in target formation 1250 psig Source Estimated
 18) Estimated reservoir fracture pressure 2650 psig (BHFP)
 19) MAXIMUM PROPOSED INJECTION OPERATIONS: Volume per hour 25 BBL Bottom hole pressure 2400 psi
 20) DETAILED IDENTIFICATION OF MATERIALS TO BE INJECTED, INCLUDING ADDITIVES Fresh water, produced water,
bactericides and other chemicals as needed to maintain water quality and improve oil recovery

21) FILTERS (IF ANY) Cartridge filters and charcoal bed filters
 22) SPECIFICATIONS FOR CATHODIC PROTECTION AND OTHER CORROSION CONTROL _____

23) CASING AND TUBING PROGRAM

CASING OR TUBING TYPE	SPECIFICATIONS					FOOTAGE INTERVALS		CEMENT FILL -UP OR SACKS (CU. FT.)	PACKERS
	Size	Grade	Weight per ft.	New	Used	For Drilling	Left In Well		
Conductor	13 3/8"	LS	NA	x		25'	25'	Drilled In	Kinds
Fresh Water	7"	LS	17#	x		463'	463'	Already drilled	Tension
Coal									Sizes
Intermediate									4" x 2"
Production	4 1/2"	LS	10.5#	x		2423.6'	2423.6'	Already drilled	Depths set
Tubing	2 3/8"	J55	4.7#	x		2200'	2200'		2100'
Liners									Perforations
									Top Bottom

24) APPLICANT'S OPERATING RIGHTS were acquired from Vera May Krebs, et al
 by deed _____ / lease x / other contract _____ / dated 02/07/1983 of record in the
Lincoln County Clerk's office in Lease Book 35 Page 154

RECEIVED
 Office of Oil and Gas
 AUG 15 2019

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

API 47 - 043 - 03591 County LINCOLN District DUVAL
Quad GRIFFITHSVILLE 7.5' Pad Name MAY, E.J. Field/Pool Name GRIFFITHSVILLE
Farm name JUDY R. SMITH Well Number 226
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 4,232,516 M Easting 415,511 M
Landing Point of Curve Northing _____ Easting _____
Bottom Hole Northing _____ Easting _____

Elevation (ft) 840' 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 11/28/18 Date drilling commenced 5/30/19 Date drilling ceased 6/6/19
Date completion activities began 6/11/19 Date completion activities ceased 6/13/19
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

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Freshwater depth(s) ft 125' Open mine(s) (Y/N) depths None
Salt water depth(s) ft 1050', 1080' Void(s) encountered (Y/N) depths None
Coal depth(s) ft 315, 385' Cavern(s) encountered (Y/N) depths None
Is coal being mined in area (Y/N) N

WV Department of Environmental Protection

Reviewed by: _____

WR-35
Rev. 8/23/13

API 47-043 - 03591 Farm name JUDY R. SMITH Well number 226

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	15"	13 3/8"	25'	New	LS		Sand In
Surface	8 3/4"	7"	463'	New	LS	64'	Y
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	6 1/4"	4 1/2"	2423.6'	New	LS		N
Tubing							
Packer type and depth set							

Comment Details Circulated Est. 25 sks to surface on 7" surface cement job. Did not circulate cement to surface on 4 1/2" cement job.

CEMENT DATA	Class/Type of Cement	Number of Sacks	Slurry wt (ppg)	Yield (ft ³ /sks)	Volume (ft ³)	Cement Top (MD)	WOC (hrs)
Conductor							
Surface	Reg Neat	120	15.6	1.18	142	Surface	8
Coal							
Intermediate 1							
Intermediate 2							
Intermediate 3							
Production	50:50 Pozmix	100/125	13.2/14.2	1.64/1.27	164/186	290'	8
Tubing							

Drillers TD (ft) 2440' Loggers TD (ft) 2440'
 Deepest formation penetrated Berea Plug back to (ft) N/A
 Plug back procedure N/A

Kick off depth (ft) N/A

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
12 Centralizers every 84' 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

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WV Department of Environmental Protection

API 47-043 - 03591

Farm name JUDY R. SMITH

Well number 226

PERFORATION RECORD

Stage No.	Perforation date	Perforated from MD ft.	Perforated to MD ft.	Number of Perforations	Formation(s)
1	6/11/19	2334'	2344'	40	Berea

Please insert additional pages as applicable.

STIMULATION INFORMATION PER STAGE

Complete a separate record for each stimulation stage.

Stage No.	Stimulations Date	Ave Pump Rate (BPM)	Ave Treatment Pressure (PSI)	Max Breakdown Pressure (PSI)	ISIP (PSI)	Amount of Proppant (lbs)	Amount of Water (bbls)	Amount of Nitrogen/other (units)
1	6/13/19	4	1169	2299	1325	1,000	140	

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Environmental Protection

Please insert additional pages as applicable.

WR-35
Rev. 8/23/13

API 47- 043 - 03591 Farm name JUDY R. SMITH Well number 226

PRODUCING FORMATION(S)	DEPTHS	TVD	MD
Berea	2330'- 2352'		

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 ₂ S, ETC)
Sand/Shale	0	385	0		
Pittsburgh Coal	385	391			
Sand/Shale	391	1614			
Big Lime	1614	1812			
Big Injun	1812	1922			
Shale	1922	2310			
Coffee Shale	2310	2330			
Berea	2330	2352			
Shale	2352	2440			
TD	2440				

Please insert additional pages as applicable.

Drilling Contractor Noah Horn Well Drilling
Address 1070 Sandy Valley Lane City Vansant State VA Zip 24656

Logging Company Weatherford International
Address 13211 Old Hwy 50 City Flora State IL Zip 62839

Cementing Company Petroset Services
Address P.O. Box 1076 City Wooster State OH Zip 44691

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 *Roger Heldman* Title Operations Manager Date 6/14/19

Submission of Hydraulic Fracturing Chemical Disclosure Information Attach copy of FRACFOCUS Registry

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Office of Oil and Gas
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Environmental Protection

47-043-03915



Producers Service Corporation
109 South Graham Street
Zanesville, OH 43701
(740) 454-6253
www.producersservicecorp.com

Frac HG Energy

Company Rep: Roger
Treater: Daniel L Graham
6/13/2019
Well: E J May #226
Lincoln County, WV

Casing

OD: 4.5"
ID: N/A
Weight: 13.6 lb.
TD: 2440 ft.

Tubing

Size: N/A
Depth: N/A

Packers

Upper Make: N/A
Upper Depth: N/A
Lower Make: N/A
Lower Depth: N/A

Pressures

PSI Test: 3936 psi
Breakdown: 2297 psi
Max: 1207 psi
Average: 1114 psi
Displacement: 1199 psi

Volumes:

Pad 5 BBL
Treatment: 45 BBL
0.15% Acid: 250 Gal
Total: 110 BBL
Flush: 34 BBL

Open Hole

Size: N/A
From: N/A
To: N/A

Perforations

of Shots: N/A
Top Perf: N/A
Bottom Perf: N/A

Rates

Average: 4 bbl/min
Max: 4 bbl/min

Notes:

Invoice #: 22210
10 Sacks

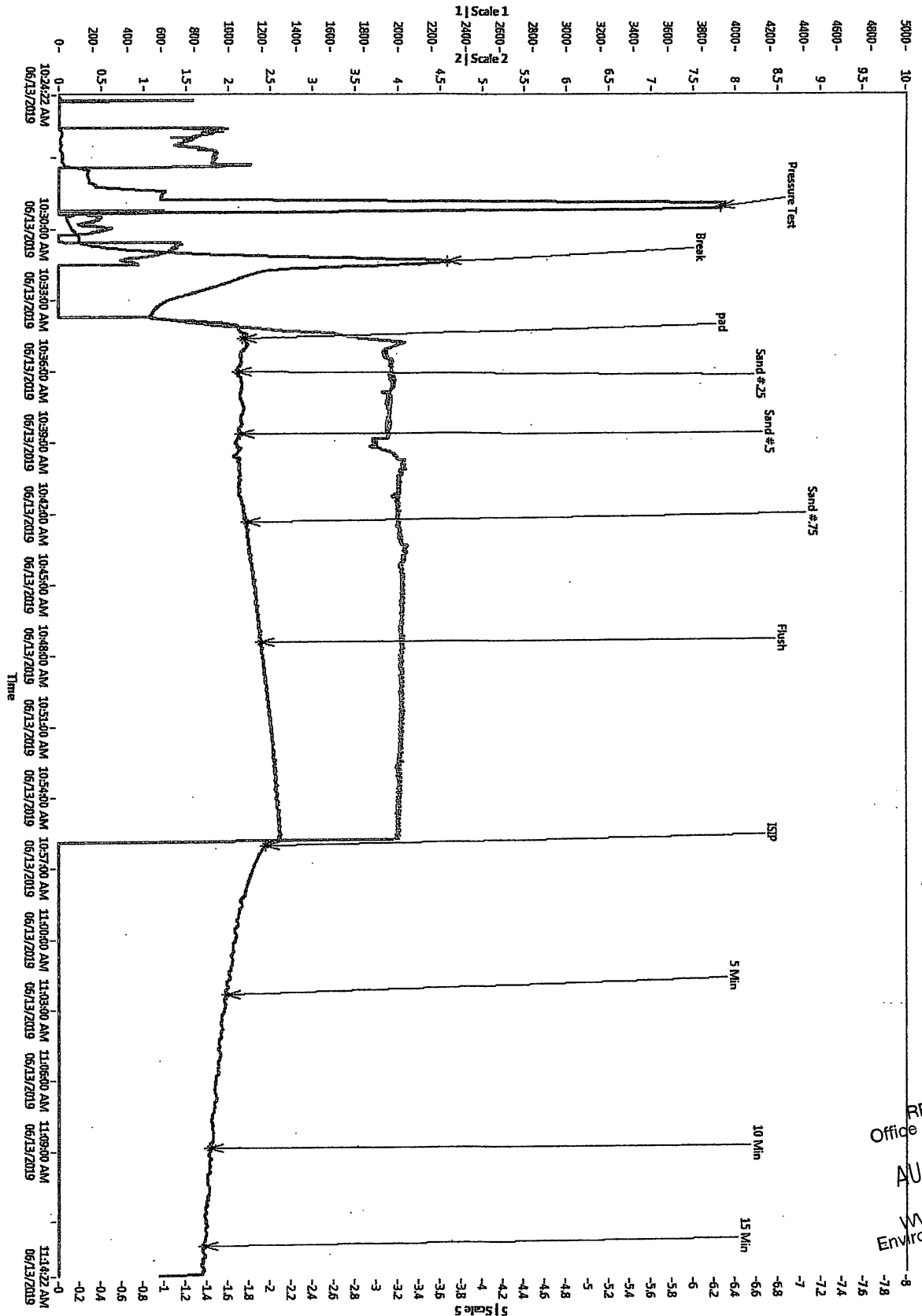
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47-043-035915

HG Energy E J May #226

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1 | Pressure 1
 2 | Rate
 5 | Blend Rate
 KK



47-043-035915



HG Energy E J May #226

Timestamp	Annotation	Pressure 1	Rate	Stage Total (bb)	Grand Total (bb)
6/13/2019 10:29:06 AM	Pressure Test	3919.30	0.00	2.93	0.00
6/13/2019 10:31:35 AM	Break	1820.78	0.00	1.48	0.00
6/13/2019 10:34:38 AM	pad	1092.48	3.55	2.06	0.00
6/13/2019 10:36:01 AM	Sand #.25	1062.82	3.95	7.47	0.00
6/13/2019 10:38:39 AM	Sand #.5	1080.14	3.91	9.08	3.65
6/13/2019 10:42:22 AM	Sand #.75	1115.00	4.02	14.72	18.44
6/13/2019 10:47:27 AM	Flush	1200.73	4.07	20.59	39.09
6/13/2019 10:56:05 AM	ISIP	1228.69	0.00	34.01	73.17
6/13/2019 11:02:22 AM	5 Min	995.60	0.00	34.01	73.17
6/13/2019 11:08:54 AM	10 Min	896.05	0.00	34.01	73.17
6/13/2019 11:13:07 AM	15 Min	860.91	0.00	34.01	73.17

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Environmental Protection

47-043-03591 S

Prepared for:

HG Energy

Dustin Hendershot



Prepared by:

Producers Service Corp

Daniel L. Graham

109 S. Graham St.

Zanesville, OH 43702

740-454-6253

INVOICE #:	22210
WELL NAME:	E J May #226
COUNTY/STATE:	Lincoln/WV
TOWNSHIP/FIELD:	Griffithsville
DATE of SERVICE:	6/13/2019
CUSTOMER PO#:	

Description	Notes	Amount	Units	Unit Cost	Total Cost
FLUID PUMP CHARGE 0-3000 PSI MIN CHARGE 4 HRS		1	EA	\$	
BLENDER CHARGE 0-10 BPM		1	EA	\$	
MILEAGE CHARGE PER UNIT ONE WAY	2 Units @ 200 miles	400	MI	\$	
IC ACID 15%		250	GAL	\$	
PRO HIB II		0.5	GAL	\$	
ACID DELIVERY		2	HR	\$	
PRO CLA FIRM LP		6	GAL	\$	
PRO NE-21		6	GAL	\$	
PRO GEL 4		50	LB	\$	
BUFFER I		50	LB	\$	
SAND 20/40 OTTAWA		10	CWT	\$	
BIO CLEAR 750		1	LB	\$	
IRONROL		50	LB	\$	
DATA VAN		1	STAGE	\$	
SAND DELIVERY / TON MILES		100	TMILE	\$	
TOTAL					

Customer Approval: _____

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Environmental Protection

FORM WW-3 (A)
1/12



1) Date: July 26, 2019
2) Operator's Well No. E J May 226
3) API Well No.: 47 - 043 - 03591
State County Permit
4) UIC Permit No. UIC2R04300001AP

**STATE OF WEST VIRGINIA
NOTICE OF LIQUID INJECTION OF WASTE DISPOSAL WELL WORK PERMIT APPLICATION
FOR THE DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS,**

5) Surface Owner(S) To Be Served
(a) Name Judy Smith
Address 25 Pond Gap Road
Yawkey, WV 25573
(b) Name Justin White
Address 90 Bear Fork Road
Yawkey, WV 25573
(c) Name
Address
6) Inspector Jeffery Smith
Address 5369 Big Tyler Road
Cross Lanes, WV 25313
Telephone 681-313-6743
7) (a) Coal Operator
Name NA
Address
7) (b) Coal Owner(S) With Declaration Of Record
Name NA
Address
7) (c) Coal Lessee with Declaration Of Record
Name NA
Address

TO THE PERSONS NAMED ABOVE: You should have received this form and the following documents

- (1) The Application For A Liquid Injection or Waste Disposal Well Work Permit on Form WW-3(B), which sets out the parties involved in the drilling or other work;
- (2) The plat (surveyor's map) showing the well location on Form WW-6; and
- (3) The Construction and Reclamation Plan on Form WW-9 (unless the well work is only to plug a well), which sets out the plan for erosion and sediment control and for reclamation for the site and access road.

The date proposed for the first injection or waste disposal is _____ 20 19 .

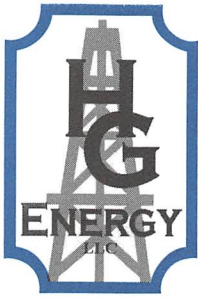
THE REASON YOU HAVE RECEIVED THESE DOCUMENTS IS THAT YOU HAVE RIGHTS REGARDING THE APPLICATION WHICH ARE SUMMARIZED IN THE "INSTRUCTIONS" ON THE REVERSE SIDE OF THE COPY OF THE APPLICATION [(FORM WW-3(B))] DESIGNATED TO YOU. HOWEVER YOU ARE NOT REQUIRED TO TAKE ACTION AT ALL.

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: Accountant
Signature: Diane White
RECEIVED
Office of Oil and Gas
AUG 15 2019
WV Department of Environmental Protection



HG Energy, LLC
5260 Dupont Road
Parkersburg, WV 26101
(304) 420-1100 - Office
(304) 863-3172 - Fax

July 26, 2019

Justin White
90 Bear Fork Road
Yawkey WV 25573

RE: Edna May No. 226
Duval District, Lincoln County
West Virginia

Dear Landowner:

Enclosed are copies of various application papers that we have filed with the West Virginia Department of Environmental Protection (WVDEP), Office of Oil and Gas. A well work permit is being requested for the above-referenced well.

Pursuant to WV Code Chapter 22B, Article 6, you are receiving copies of this correspondence because the well or other anticipated disturbance is located on your surface property. Your rights as a landowner are detailed in the enclosed permit application papers.

No action on your part is required. If you have any questions or comments regarding this application, you may call this office at (304) 420-1119.

Very truly yours,

Diane White

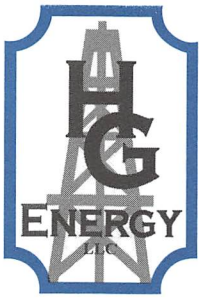
Diane C. White

Enclosures

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Environmental Protection



HG Energy, LLC
5260 Dupont Road
Parkersburg, WV 26101
(304) 420-1100 - Office
(304) 863-3172 - Fax

July 26, 2019

Judy Smith
25 Pond Gap
Yawkey, WV 25573

RE: Edna May No. 226
Duval District, Lincoln County
West Virginia

Dear Landowner:

Enclosed are copies of various application papers that we have filed with the West Virginia Department of Environmental Protection (WVDEP), Office of Oil and Gas. A well work permit is being requested for the above-referenced well.

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No action on your part is required. If you have any questions or comments regarding this application, you may call this office at (304) 420-1119.

Very truly yours,

Diane White

Diane C. White

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Office of Oil and Gas
AUG 15 2019
WV Department of
Environmental Protection

Enclosures

47-043-03591S

WW-9
(2/15)

API Number 47 - 043 - 03591
Operator's Well No. E J May 226

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: NA

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

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number _____)
- Reuse (at API Number _____)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain No fluids are expected to be generated, conversion from a producer to an injection well)

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

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

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

Additives to be used in drilling medium? NA

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

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

-Landfill or offsite name/permit number? Shouldn't be required, but if needed, will be determined upon approval of the permit

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

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature Diane White

Company Official (Typed Name) Diane White

Company Official Title Accountant

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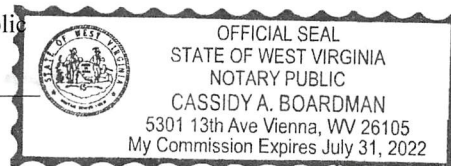
AUG 15 2019

WV Department of
Environmental Protection

Subscribed and sworn before me this 26th day of July, 20 19

Cassidy A. Boardman Notary Public

My commission expires 7/31/2022



HG Energy, LLC

Proposed Revegetation Treatment: Acres Disturbed 0.5 acres Prevegetation pH _____

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch Straw 2 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Tall Fescue	40	Tall Fescue	40
Ladino Clover	5	Ladino Clover	5

****Sediment Control Will Be Maintained At All Times****

Attach:

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: All sediment Jeffrey Smith

Comments: Control to be removed prior to release.

Title: Oil & Gas Inspector

Date: 8-5-19

Field Reviewed? Yes No

RECEIVED
Office of Oil and Gas

AUG 15 2019

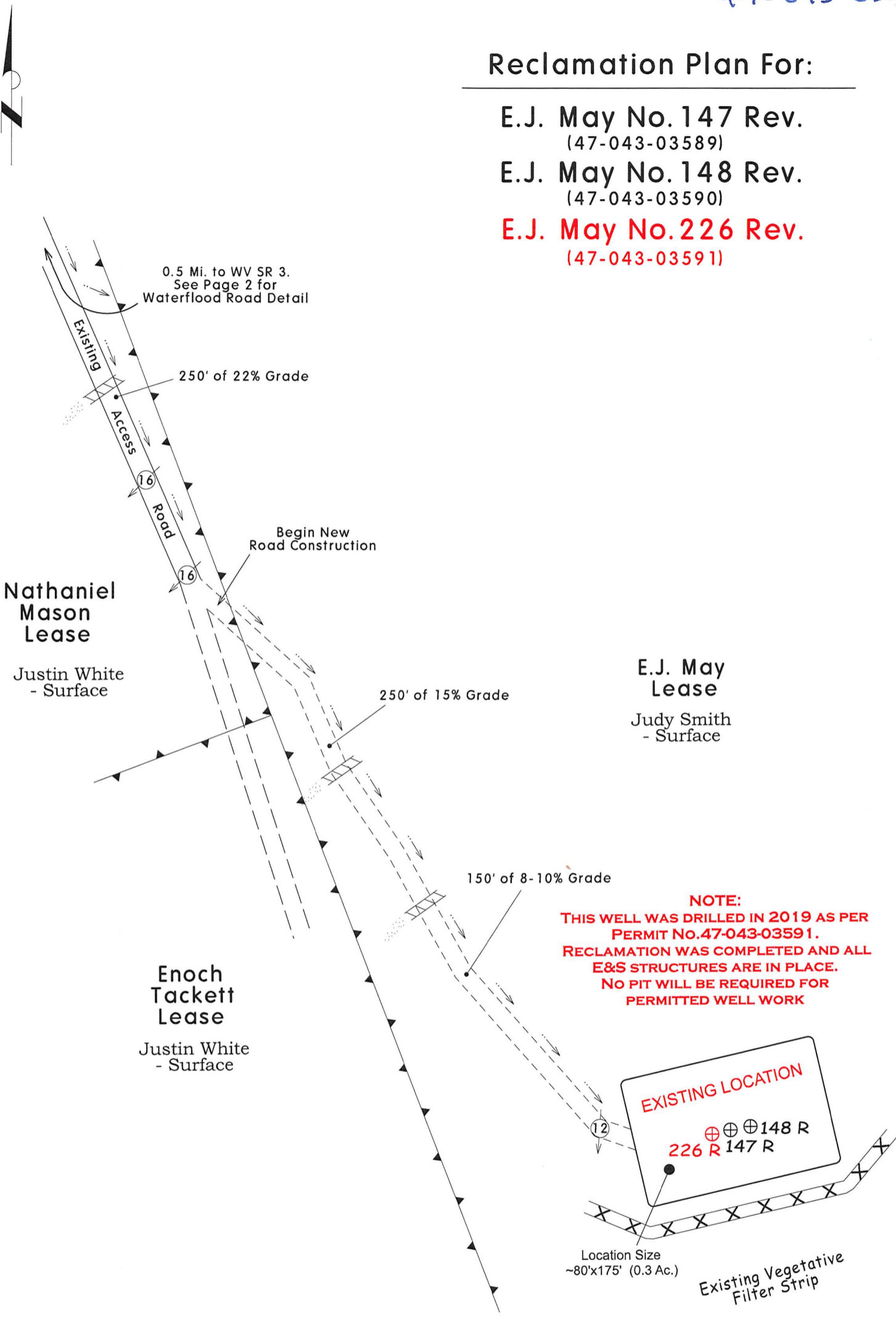
WV Department of
Environmental Protection

Reclamation Plan For:

E.J. May No. 147 Rev.
(47-043-03589)

E.J. May No. 148 Rev.
(47-043-03590)

E.J. May No. 226 Rev.
(47-043-03591)



Notes:

- REQUESTED PERMIT IS FOR CONVERSION OF EXISTING WELL.
- ALL ACCESS ROADS ARE EXISTING AND WILL BE MAINTAINED TO WVDEP STANDARDS.
- ANY DISTURBED AREAS WILL BE RE-VEGETATED AS OUTLINED ON FORM WW-9.
- MAINTAIN SEDIMENT BARRIERS AND DRAINAGE STRUCTURES.
- 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.

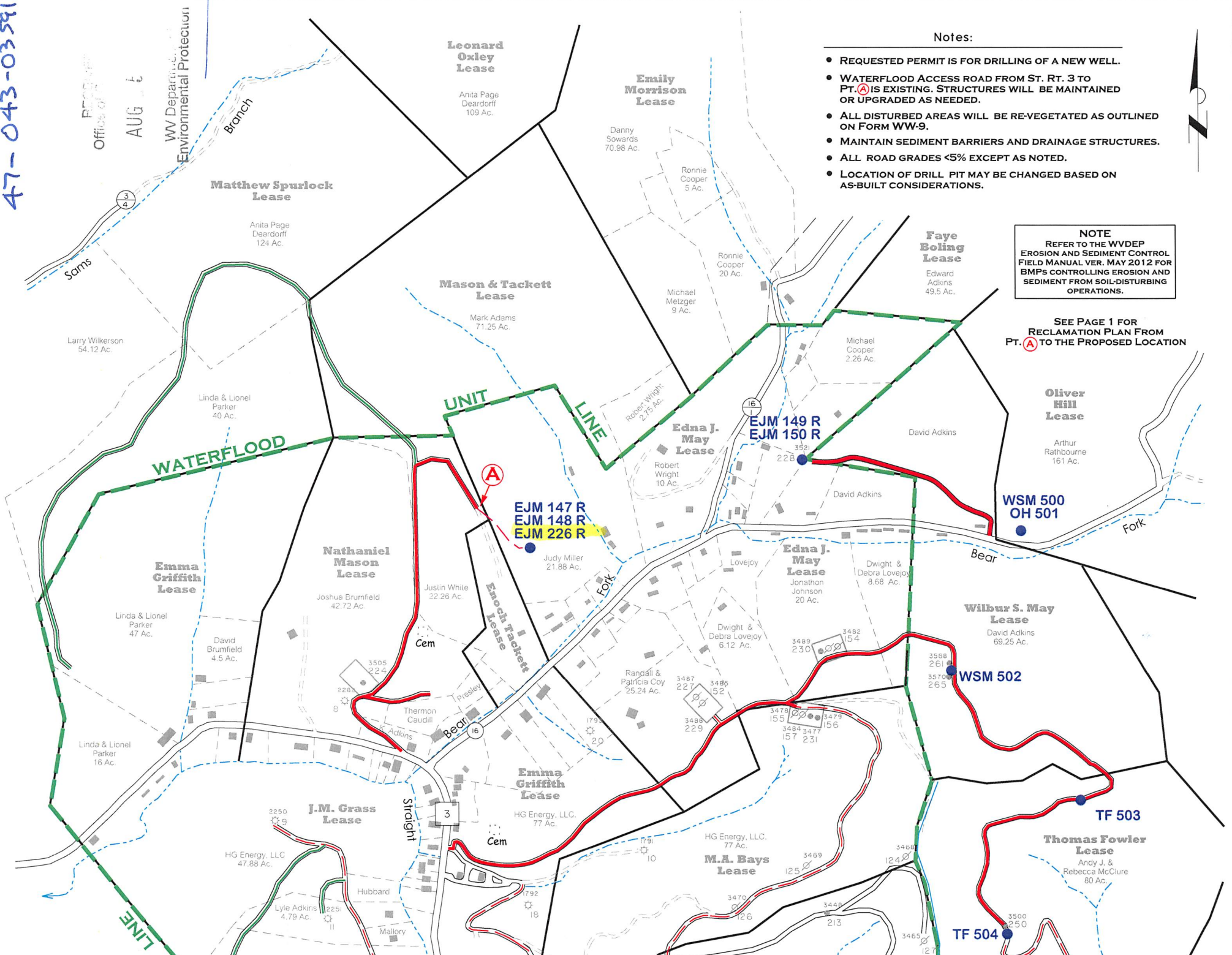
47-043-03591S

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.

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.

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



Office of
 AUG 18
 WV Department of
 Environmental Protection

WATERFLOOD

UNIT LINE

**EJM 147 R
 EJM 148 R
 EJM 226 R**

**EJM 149 R
 EJM 150 R**

**WSM 500
 OH 501**

WSM 502

TF 503

TF 504

3

16

3521

228

3505

224

226

228

228

228

228

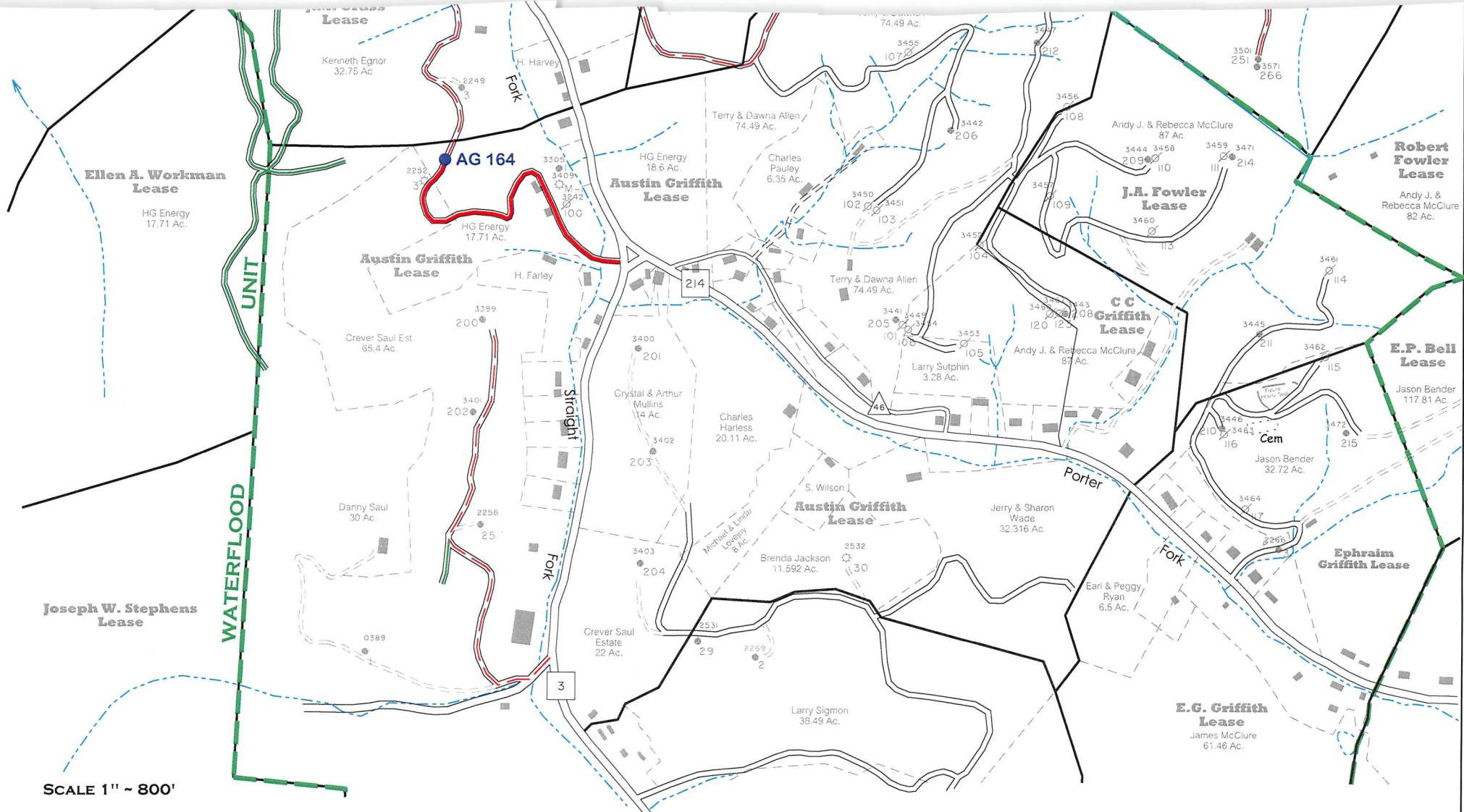
228

228

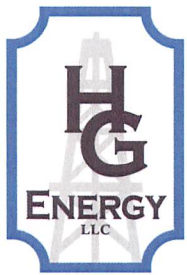
228

228

228



SCALE 1" ~ 800'



GRIFFTHSVILLE WATERFLOOD

Lincoln County, W.Va.

RECLAMATION PLAN SHOWING ROAD SYSTEMS TO BE USED FOR 2019 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.

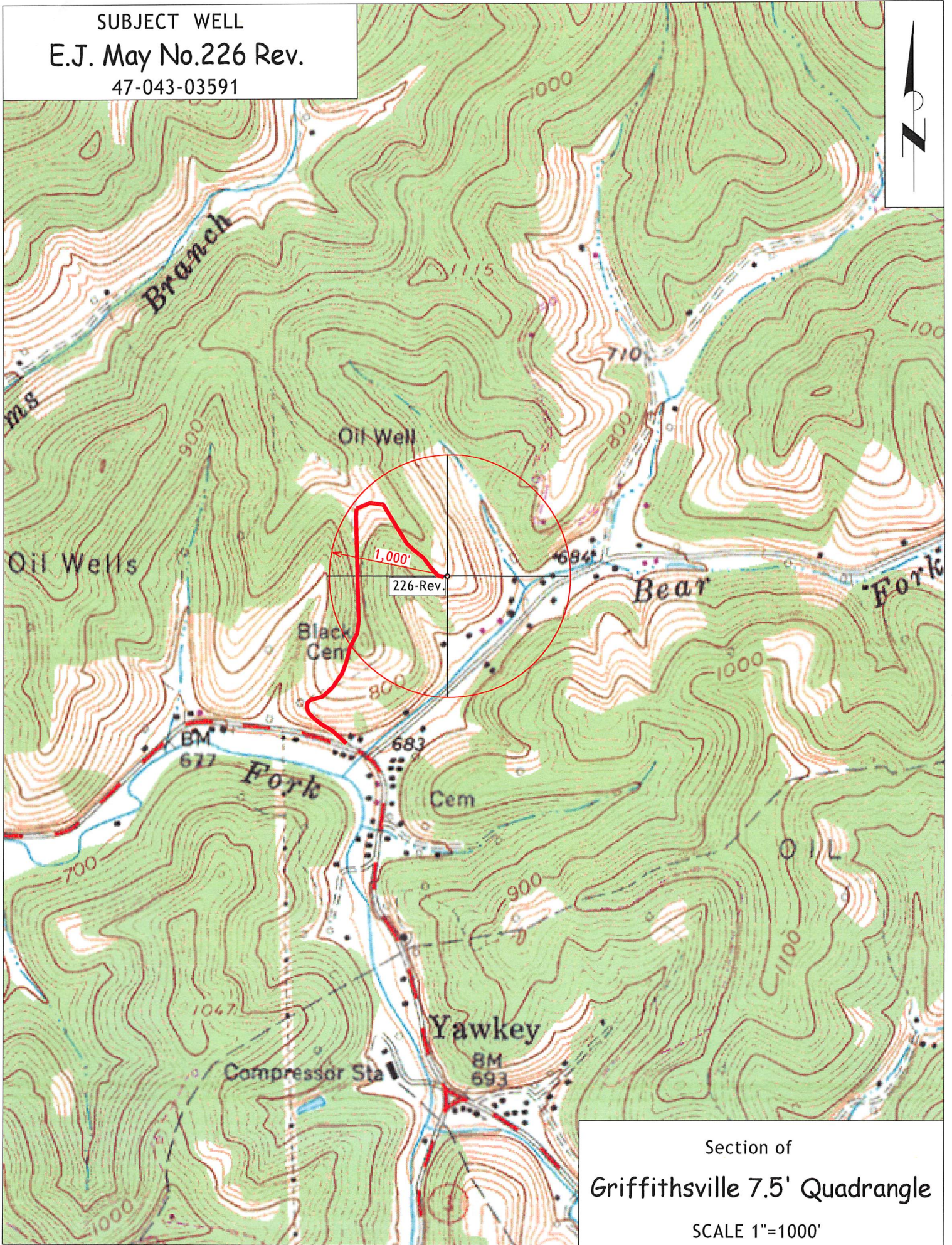
2. SEE PAGE ONE OF RECLAMATION PLAN FOR DETAILS OF NEW ROAD CONSTRUCTION AND ROAD UPGRADES FROM POINT (A) TO DRILL SITE LOCATION.

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.

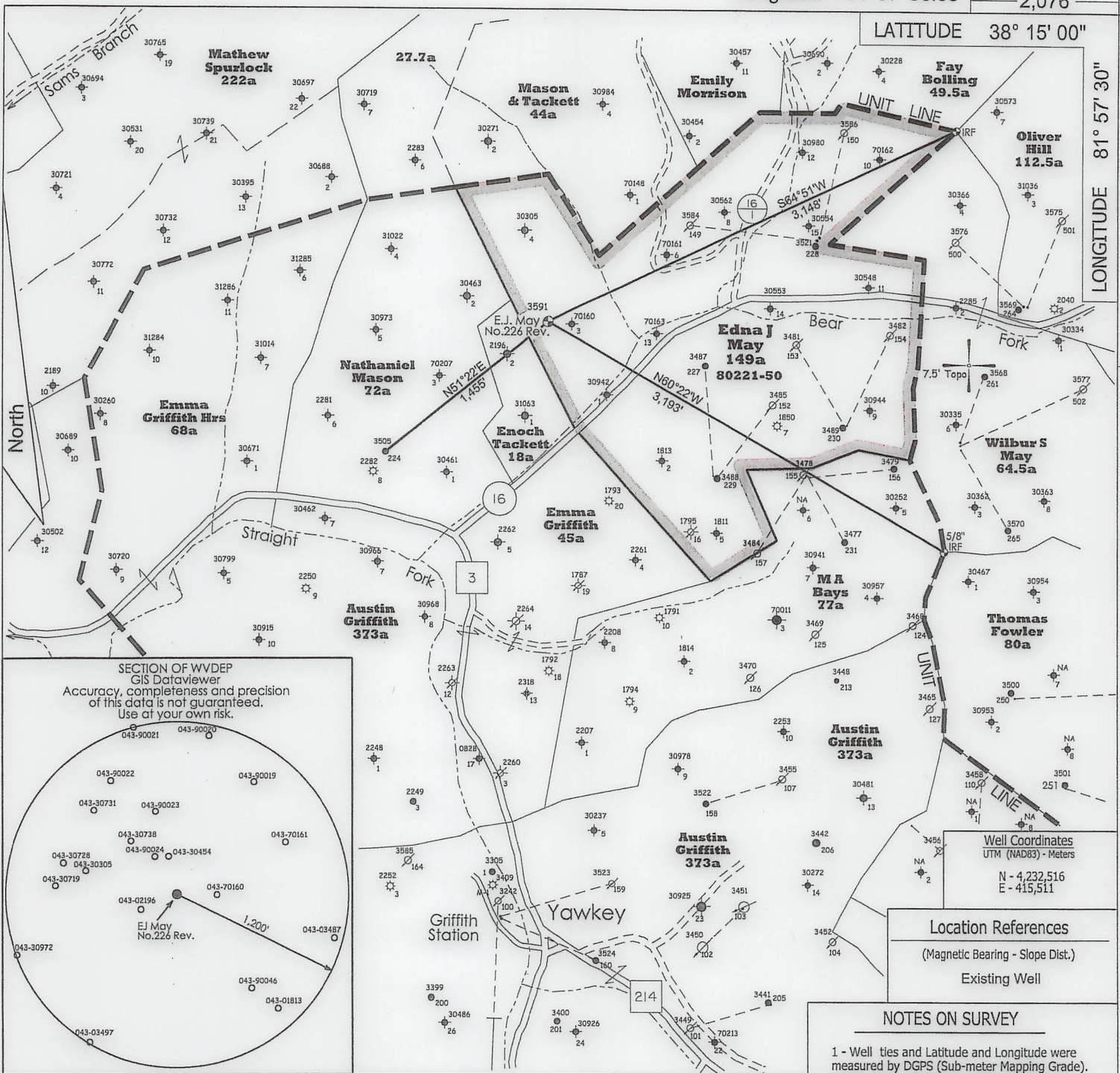
LEGEND

-  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.
-  EJM 226 R
LOCATION FOR PROPOSED WELLS
-  POTENTIAL WATER SUPPLY SOURCE TO BE SAMPLED (SEE TOPO SHEET)

SUBJECT WELL
E.J. May No.226 Rev.
47-043-03591



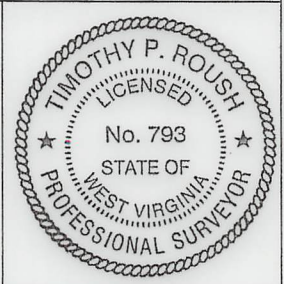
Section of
Griffithsville 7.5' Quadrangle
SCALE 1"=1000'



- DENOTES A POSSIBLE WATER SUPPLY SOURCE LOCATED FROM CIRCA 2016 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)
TIMOTHY P. ROUSH PS 793



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

DATE July 26, 2019
 FARM E.J. May No.226 Rev.
 API WELL NO. 47 - 043 - 03591 S

WELL TYPE: OIL GAS LIQUID INJECTION WASTE DISPOSAL
 (IF "GAS") PRODUCTION STORAGE DEEP SHALLOW
 LOCATION: ELEVATION 840' WATERSHED Bear Fork
 DISTRICT Duval COUNTY Lincoln
 QUADRANGLE Griffithsville 7.5'
 SURFACE OWNER Judy Smith Saul ACREAGE 21.88 Ac.
 OIL & GAS ROYALTY OWNER HG Energy, LLC et al. LEASE ACREAGE 149 Ac.
 LEASE NO. 80221-50
 PROPOSED WORK: DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION OTHER PHYSICAL CHANGE IN WELL (SPECIFY) Convert Producer to Liquid Injection Well
 PLUG AND ABANDON CLEAN OUT AND REPLUG
 TARGET FORMATION Berea ESTIMATED DEPTH 2,440'
 WELL OPERATOR HG Energy LLC. DESIGNATED AGENT Diane White
 ADDRESS 5260 DuPont Road ADDRESS 5260 DuPont Road
Parkersburg, WV 26101 Parkersburg, WV 26101