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

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

Wednesday, August 03, 2016
WELL WORK PERMIT
Vertical / Plugging - 2

HG ENERGY, LLC
5260 DUPONT ROAD

PARKERSBURG, WV 26101

Re: Permit approval for 1
47-043-01721-00-00

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: 1
Farm Name: NUNN, STONE W.
U.S. WELL NUMBER: 47-043-01721-00-00
Vertical / Plugging - 2
Date Issued:

4301721P

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. All pits must be lined with a minimum of 20 mil thickness synthetic liner.

2. 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.

3. Well work activities shall not constitute a hazard to the safety of persons.

4. This well is under a consent order and must be plugged within two years of the date of issuance of this permit.

4301721P

WW-4B
Rev. 2/01

1) Date February 11, 2016
2) Operator's
Well No. S W Nunn 1
3) API Well No. 47-043-1721

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

APPLICATION FOR A PERMIT TO PLUG AND ABANDON

4) Well Type: Oil X / Gas X / Liquid injection ____ / Waste disposal ____ /
(If "Gas, Production ____ or Underground storage ____) Deep ____ / Shallow X

5) Location: Elevation 1079' Watershed Hayzlett Fork
District Duval County Lincoln Quadrangle Garrett's Bend 7.5' 358

6) Well Operator HG Energy, LLC
Address 5260 Dupont Road
Parkersburg, WV 26101

7) Designated Agent Diane White
Address 5260 Dupont Road
Parkersburg, WV 26101

8) Oil and Gas Inspector to be notified
Name Jeremy James
Address PO Box 36
Clendenin, WV 25045

9) Plugging Contractor
Name To Be Determined Upon Approval of Permit
Address ____

10) Work Order: The work order for the manner of plugging this well is as follows:

** See Attached Sheet **

Notification must be given to the district oil and gas inspector 24 hours before permitted work can commence.

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JUN 10 2016
WV Department of Environmental Protection

Work order approved by inspector Jeffrey Smith Date 6-13-16

43017 21P

WW-4B - Conti
Rev. 2/01

1) Date: February 11, 2016
2) Operator's Well Number
S W Nunn 1
3) API Well No: 47 - 043 - 1721
State County Permit

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

APPLICATION FOR A PERMIT TO PLUG AND ABANDON

4) WELL TYPE: Oil x Gas x Liquid Injection _____ Waste Disposal _____
(If "Gas", Production _____ Underground Storage _____) Deep _____ Shallow x

5) LOCATION: Elevation: 1079' Watershed: Hayzlett Fork
District: Duval County: Lincoln Quadrangle Garrett's Bend 7.5'

6) WELL OPERATOR: HG Energy, LLC 494497948
Address 5260 Dupont Road
Parkersburg, WV 26101

7) DESIGNATED AGENT Diane White
Address 5260 Dupont Road
Parkersburg, WV 26101

8) OIL & GAS INSPECTOR TO BE NOTIFIED
Name Jeremy James
Address P. O. Box 36
Clendenin, WV 25045

9) PLUGGING CONTRACTOR
Name To Be Determined Upon Approval of Permit
Address

10) WORK ORDER: The work order for the manner of plugging this well is as follows:

TD- 2,612'

Manners of plugging:
Plug #1 - 2500' - 2400' (SPOT GEL TO PBTD OF 2596' BEFORE SETTING PLUG # 1.) JK Wm
Located above the highest perforation
Check for free-point at top of Big Lime (1864'), If pipe is free, part and pull. If pipe is not free, preforate for placement of plug #2.
Plug # 2 - Approx. 1950' - 1850'
Located at top of Big Lime - 4 1/2" casing stub
Plug #3 - 1125' - 1025'
Located at elevation, if pipe was not free at top of Big Lime, part and pull at elevation (1079')
If pipe isn't free at elevation, preforate for placement of plug #4. Find first available free-point above elevation, part and pull pipe. Set additional plug at 4 1/2" casing stub.
Plug #4 - 475' - 375'
Located at 8 5/8" casing shoe, below fresh water
Plug #5 - 100' - 0'

Recover all possible casing. If casing can not be recovered, perforate for plug placement.

Monument -
6" minimum diameter metal pipe
30" above surface
10' in well below surface
Sealed with cement
API identification (1/2") height numbering

6% Gel between all plugs

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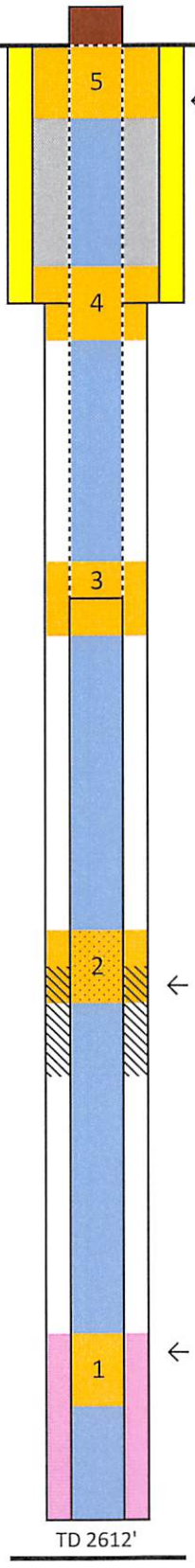
4301721 P

Well: S.W. Nunn #1
API: 47-43-1721
Elevation: 1079'

Monument to extend 30" above surface. 10' into well. 6" min metal pipe, sealed with cement. API i.D.

Casing Information		
Size	Depth	Weight
8 5/8"	423'	20#/ft.
4 1/2"	2604'	10.5#/ft.



← 280 sacks cement to surface

Freepoint Cut and Pull Casing	
Size	Approx. Depth
4 1/2	1864' or 1079'

Hole Size 6.75" →

Cement Plugs		
NO.	Bottom	Top
1	2500	2400
2	1950	1850
3	1125	1025
4	475	375
5	100	0

← Big Lime 1864' - 2033'

← 50 Sacks Cement T.O.C. 2391'

Highest Perforation 2558'

Bottom Hole Cement Level Calculations

# Sacks Used	Cement Depth
50	2391.167

Hole Size	Casing Size	Depth
6.75	4.5	2612

diameter delta	Conv. Factor	bbls / ft.
25.3125	1029.4	0.02459

cubic ft. per vertical ft. depth
0.138058122

Sacks per vertical ft. depth
0.226415321

Yield options

50/50 posmix 6% gel = 1.64
Neat w/ salt flakes = 1.19
50/50 w/ 2% gel = 1.27

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4301721P

PENNZOIL COMPANY
Well Completion Report

Lease: S. W. NUNN Well No. 1 New Well X Old Well ___

District: Duval County: Lincoln State: West Virginia

Pool Name: Griffithsville Northeast Pool No. 57 Elevation 1079.16' KB:~~GL~~

Producing Formation: Berea Depth: From 2550' to 2571'

Date Drilled In: October 11, 1976 Pays: Oil: From 2550' to 2571'
From ___ to ___

Original Total Depth: 2612'

Gas: From 2550' to 2571'
From ___ to ___

Plug Back Depth: 2596'

Production	Initial	Present	After Fracture
Oil			
Gas			

8-5/8"
Surface Csg. set @ 431' KB:~~GL~~ Gr. H-40 New:Used Wt. 20# Collars ST&C

Cement Reg. Neat Amount 280 Sacks Plug Down @ 10:30 ~~AM~~:PM Date 10/7/76

4-1/2"
Production Csg. set @ 2612' KB:~~GL~~ Gr. ERW New:Used Wt. 10.50# Collars ST&C

Cement 50/50 Posmix Amount 50 Sacks Plug Down @ 11:15 ~~AM~~:PM Date 10/11/76

Logged by: Basin Surveys Date: October 11, 1976

Logs Used: Gamma Ray-Comp. Density-Caliper

Perforated by: McCullough Date: November 18, 1976

Perforations: 2558'-2563' - 4 holes/ft. - 20 holes

Treatment Data

	Fluid	Sand	Acid	Solvent	Gel	Breaking Agent	Fluid Loss	F.R. Agent	N.E. Agent
Type	Lease Crude	20/40	15% HCl	Parathin					15-N
Amount	570	27,000	500	55					2

Breakdown Pressure: 1500 Treating Pressure: Max. 2600 Min. 2400 Avg. 2500

Avg. Inj. Rate 30.5 BPM ISIP 1500 @ 4:10 ~~AM~~:PM 5 min. SIP 700

10 min. SIP 600 15 min. SIP 550 Other 1 hr. SIP 400#

EQUIPMENT USED

Service Company: Halliburton HHP 1869

By: Jeffrey M. Beardmore Date Fractured: 11/18/76

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FORM NO. 989 IM 9/66 M'G. 1917

PENNZOIL COMPANY

NEW WELL REPORT

LEASE NO. 46153-00 109.05 ACRES

WORKING DISTRICT Southern Area

Stone W. Nunn FARM

WELL NO. 1 N. S. 80 E. W. 72 Map No. 124-W

Duval DISTRICT OR TOWNSHIP Lincoln COUNTY St. Albans QUAD.

LOCATION MADE September 2, 19 76

DRILLING COMMENCED October 6, 19 76

DRILLING EQUIPMENT USED ☒ SPUDDER ☐ ROTARY

DRILLING COMPLETED October 11, 19 76

DRILLING EQUIPMENT FURNISHED BY FWA Drilling Co.

TOTAL DEPTH SAND Berea

ELEVATION: FLOOR 1079.16

DRILLING CONTRACTOR FWA Drilling Co.

ELEVATION: GROUND 1071.16

WORK ORDER NO.

FORMATION RECORD

KIND	TOP	BOTTOM	STEEL LINE MEAS.	TEST	KIND	TOP	BOTTOM	STEEL LINE MEAS.	TEST
ubstructure	0	8							
ock, Shale, Sand	8	150							
hale	150	240							
and	240	284							
hale	284	448							
and	448	570							
hale	570	1202							
alt Sand	1202	1437							
andy Shale	1437	1534							
alt Sand	1534	1734							
hale	1734	1780							
alt Sand	1780	1831							
ittle Lime	1831	1862							
encil Cave	1862	1864							
ig Lime	1864	2033							
cCrady Shale	2033	2073							
ig Injun	2073	2116							
hale	2116	2196							
ier Sand	2196	2259							
hale	2259	2528							
offee Shale	2528	2550							
ere	2550	2571							
hale	2571	2611							
otal Depth		2611							

Logged By Basin Surveys 10-11-76 to 2615

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(OVER)

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NEW WELL REPORT — CONTINUED

INITIAL TORPEDO RECORD	CASING AND TUBING RECORD						
	SIZE	PUT IN WELL			PULLED OUT		
		TRANSFER NO.	FEET	INCH	TRANSFER NO.	FEET	INCH
of Shot	8 5/8		427	18			
Name of Torpedo Co.	4 1/2						
No. of Quarts							
Length of Shell							
Diameter of Shell							
Length of Anchor							
Top of Shot							
Bottom of Shot							
Feet of Fluid in Hole When Shot							
Results:							

INITIAL PRODUCTION FIRST 24 HOURS	PACKER RECORD			
	KIND	SIZE	DEPTH SET	DATE SET
Open Flow /10ths Water in ____ Inch	Steel Shoe	8 5/8	431	RKB 10-7-76
____ /10ths Merc. in ____ Inch	Guide Shoe	4 1/2		RKB
Volume ____ Cu. Ft.				
Rock Pressure ____ lbs. ____ hrs.				
Oil ____ bbls., First 24 hrs.				

ACIDIZATION OR FRACTURING RECORD

DATE WELL ACIDIZED ____

DATE WELL FRACTURED ____

NAME OF COMPANY ____

(List below materials used in Acidizing or Fracturing, i.e., Sand, Crude Oil, Gasoline, Water, Kerosene, Mothballs, Acid, etc., giving gallons, barrels and pounds.)

570 Bbl. Crude Oil
27000 Lbs 20/40 Sand
500 Gal 15% HCl

BREAKDOWN PRESSURE 1500

PUMPING PRESSURE Max 2700 Min 2400

AVERAGE PUMPING RATE/MINUTE 31.2 BPM

PUMPING TIME ____

RESULT AFTER TREATMENT } GAS ____ CU. FT.
OIL ____ BBLS.

ROCK PRESSURE AFTER TREATMENT ____ LBS.

CASING CEMENTED

8 5/8 SIZE 431 FT. RKB 10-7-76 DATE

BAGS USED 280 sks Neat Cement 3% cc 1/8# flocele

SIZE ____ FT. ____ DATE

BAGS USED ____

SIZE ____ FT. ____ DATE

BAGS USED ____

SIZE ____ FT. ____ DATE

BAGS USED ____

TOP DEPTH OF CEMENT SHOWN BY TEMPERATURE LOG

EMARKS:

APPROVED

B. H. Valentine

SUPERINTENDENT

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4301721P

WW-4A
Revised 6-07

1) Date: February 11, 2016
2) Operator's Well Number
S. W. Nunn 1

3) API Well No.: 47 - 043 - 1721

STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
NOTICE 0F APPLICATION TO PLUG AND ABANDON A WELL

4) Surface Owner(s) to be served:
(a) Name Orville Nunn
Address 2340 Garrett's Bend Road
Sod, WV 25564
(b) Name
Address
(c) Name
Address

6) Inspector Jeremy James
Address P. O. Box 36
Clendenin, WV 25045
Telephone 304-951-2596

5) (a) Coal Operator
Name NA
Address
(b) Coal Owner(s) with Declaration
Name NA
Address
Name
Address
(c) Coal Lessee with Declaration
Name NA
Address

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

(1) The application to Plug and Abandon a Well on Form WW-4B, which sets out the parties involved in the work and describes the well its and the plugging work order; and
(2) The plat (surveyor's map) showing the well location on Form WW-6.

The reason you received these documents is that you have rights regarding the application which are summarized in the instructions on the reverses side. However, you are not required to take any 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 permit to plug and abandon a well with the Chief of the Office of Oil and Gas, West Virginia Department of Environmental Protection, with respect to the well at the location described on the attached Application and depicted on the attached Form WW-6. Copies of this Notice, the Application, and the plat 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 mailing or delivery to the Chief.

OFFICIAL SEAL
Notary Public, State Of West Virginia
TYLER RITCHIE
499 Dale Drive
Mineral Wells, WV 26150
My Commission Expires June 23, 2020

Well Operator HG Energy, LLC
By: Diane White Diane White
Its: Agent
Address 5260 Dupont Road
Parkersburg, WV 26101
Telephone 304-420-1119

Subscribed and sworn before me this 11th day of February, 2016
Tyler Ritchie Notary Public
My Commission Expires June 23, 2020

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JUN 30 2016
WV Department of Environmental Protection

Oil and Gas Privacy Notice

The Office of Oil and Gas processes your personal information, such as name, address and phone number, as a part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use of your personal information, please contact DEP's Chief Privacy Officer at depprivacyoffier@wv.gov.

4301721 P

WW-9
(5/16)

API Number 47 - 043 - 1721
Operator's Well No. S W Nunn 1

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) Hazlett Fork Quadrangle Garrett's Bend 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: ANY WELL EFFLUENT MUST BE CONTAINED IN TANKS AND TAKEN TO OFF SITE DISPOSAL. gwm

_____ 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 Any fluids will be hauled for off site disposal at an authorized site to be determined at the time the well is plugged

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. NA

-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

Company Official (Typed Name) Diane White

Company Official Title Agent

OFFICIAL SEAL
Notary Public, State Of West Virginia
TYLER RITCHIE
499 Dale Drive
Mineral Wells, WV 26150
My Commission Expires June 23, 2020

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JUN 30 2016
WV Department of Environmental Protection

Subscribed and sworn before me this 11st day of February, 2016

Tyler Ritchie Notary Public

My commission expires June 23, 2020

4301721P

Form WW-9

Operator's Well No. S W Nunn 1

HG Energy, LLC

Proposed Revegetation Treatment: Acres Disturbed 1.3 acres Prevegetation pH _____

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20 or equivalent

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

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.

** Sediment Control Will Be In Place At All Times **

Plan Approved by: Jeffrey L. Smith

Comments: _____

Title: Oil & Gas Inspector Date: 6-13-15

Field Reviewed? (✓) Yes ( ) No

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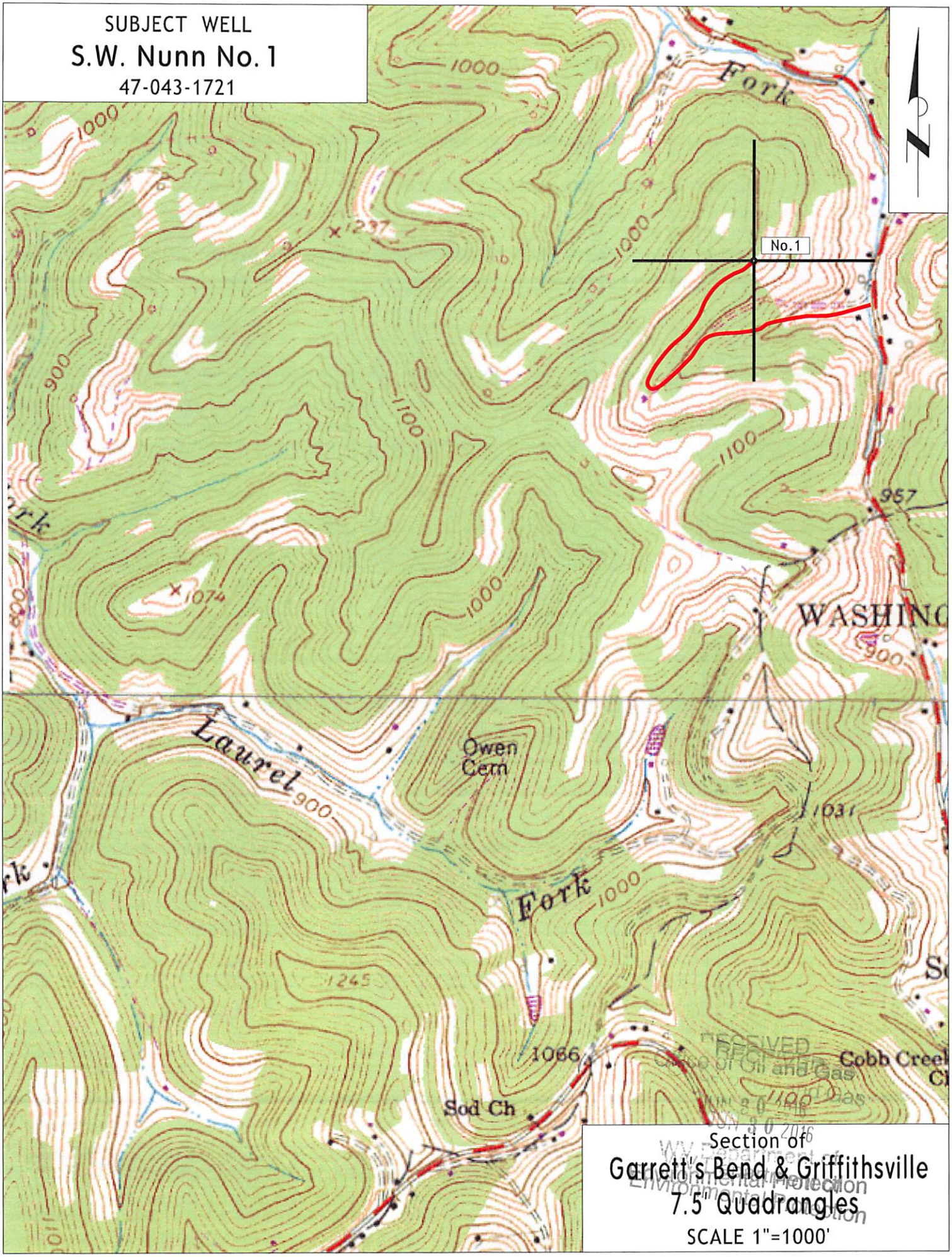
SUBJECT WELL

S.W. Nunn No. 1

47-043-1721



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Section of

Garrett's Bend & Griffithsville 7.5' Quadrangles

SCALE 1"=1000'

4301721 P

WW-7
5-02

West Virginia Department of Environmental Protection
Office of Oil & Gas
WELL LOCATION FORM: GPS

API: 47- 043 - 1721 **WELL NO:** 1

FARM NAME: S.W. Nunn No.1

RESPONSIBLE PARTY NAME: H.G. Energy, LLC

COUNTY: Lincoln **DISTRICT:** Duval - 2

QUADRANGLE: Garrett's Bend 7.5' - 358

SURFACE OWNER: Orville Nunn

ROYALTY OWNER: H.G. Energy, LLC et al.

UTM GPS NORTHING: 4,235,039 (NAD 83)

UTM GPS EASTING: 422,717 (NAD 83) **GPS ELEVATION:** 322 m. - 1079ft

The Responsible Party named above has chosen to submit GPS coordinates in lieu of preparing a new well location plat for a plugging permit on the above well. The Office of Oil & Gas will not accept GPS coordinates that do not meet the following requirements:

1. Datum: NAD 1983, Zone:17 North, Coordinate Units: meters, Altitude: height above mean sea level (MSL) - meters.
2. Accuracy to Datum - 3.05 meters
3. Data Collection Method:

Survey Grade GPS	___	Post Processed Differential	___
		Real-Time Differential	___
Mapping Grade GPS	X	Post Processed Differential	X
		Real-Time Differential	___

I the undersigned, hereby certify this data 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 Office of Oil and Gas.

Diane White — Diane C. White — Designated Agent

Signature — Title

November 24, 2015

Date

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