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

Monday, October 31, 2016
WELL WORK PERMIT
Vertical / Plugging

HG ENERGY, LLC
5260 DUPONT ROAD

PARKERSBURG, WV 26101

Re: Permit approval for 1
47-043-01806-00-00

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: HILBERT ESTATE
U.S. WELL NUMBER: 47-043-01806-00-00
Vertical / Plugging
Date Issued: 10/31/2016

4301806P

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.

4301806 P

WW-4B
Rev. 2/01

1) Date June 16, 2016
2) Operator's
Well No. Hilbert Estate 1
3) API Well No. 47- 043 - 1806

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 X or Underground storage ____) Deep ____ / Shallow X

5) Location: Elevation 881' Watershed Laurel Fork
District Duval County Lincoln Quadrangle Garrett's Bend 7.5'

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 Jeffery L. Smith
Address 5369 Big Tyler Road
Cross Lanes, WV 25313

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.

Work order approved by inspector Jeffrey Smith Date 8-1-16

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WW-4B - Conti
Rev. 2/01

1) Date: June 16, 2016
2) Operator's Well Number
Hilbert Estate 1
3) API Well No: 47 - 043 - 1806
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: 881' Watershed: Laurel 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 Jeffery L Smith
Address 5369 Big Tyler Road
Cross Lanes, WV 25313

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- 2,437' PBTD 2416'

Manners of plugging: Spot Gel
Plug #1 - 2200' - 2100'
Located above the highest perforation
Check for free point at top of Big Lime (1682'). If pipe is free, part and pull.
If pipe isn't free, perforate for placement of plug #2.
Plug # 2 - Approx. 1730' - 1630'
Located at top of Big Lime - 4 1/2" casing stub
Plug #3 - 930' - 830'
Located at elevation. If pipe wasn't free at 1682', part and pull casing at elevation (881')
If pipe isn't free at elevation, perforate for placement of plug #3, find first available free point above elevation to part and pull pipe. Set additional plug at 4 1/2" casing stub.
Plug #4 - 325' - 0'
Located at 8 5/8" casing shoe, fresh water to surface

JS

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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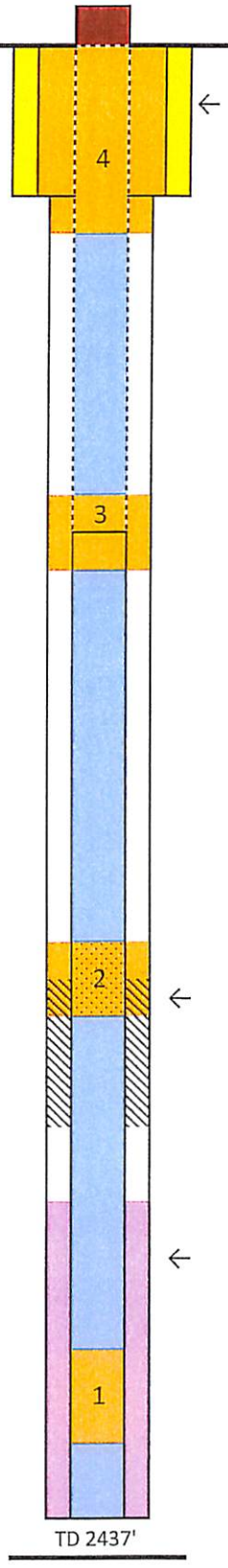
Well: Hilbert Estate #1

API: 47-043-1806

Elevation: 881'

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"	281'	20#/ft.
4 1/2"	2430'	10.5#/ft.



← 185 sacks cement to surface

Freepoint Cut and Pull Casing	
Size	Approx. Depth
4 1/2	1682' or 881'

Hole Size 6.75" →

Cement Plugs		
NO.	Bottom	Top
1	2200	2100
2	1730	1630
3	930	830
4	325	0
5		

JS

← Big Lime 1682' - 1868'

← 75 Sacks Cement T.O.C. 1976'

Highest Perforation 2372'

Bottom Hole Cement Level Calculations

# Sacks Used	Cement Depth
75	1976.619

Hole Size	Casing Size	Depth
6.75	4.5	2437

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

0.162908584

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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PENNZOIL COMPANY
Well Completion Report

Lease: HILBERT ESTATE Well No. 1 New Well X Old Well ___

District: Duval County: Lincoln State: West Virginia

Pool Name: Griffithsville Northeast Pool No. 57 Elevation 886.70' KB~~GL~~

Producing Formation: Berea Depth: From 2364' to 2386'

Date Drilled In: October 31, 1977 Pays: Oil: From 2364' to 2386'
From ____ to ____

Original Total Depth: 2437' Gas: From 2364' to 2386'

Plug Back Depth: 2416' From ____ to ____

Production	Initial	Present	After Fracture
Oil			
Gas			

8-5/8"
Surface Csg. set @ 289' KB:~~GL~~ Gr. H-40 New:Used Wt. 20# Collars ST&C

Cement Reg. Neat Amount 185 Sacks Plug Down @ 5:00 AM:~~PM~~ Date 10/29/77

4-1/2"
Production Csg. set @ 2437' KB:~~GL~~ Gr. K-55 New:Used Wt. 9.50# Collars ST&C

Cement 50/50 Posmix Amount 75 Sacks Plug Down @ 8:30 AM:~~PM~~ Date 11/1/77

Logged by: Basin Surveys, Inc. Date: November 1, 1977

Logs Used: Gamma Ray-Comp. Density-Caliper

Perforated by: McCullough Date: November 8, 1977

Perforations: 2372'-2377' - 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					
Amount	552	27,000	500	1 drum					

Breakdown Pressure: 2400 Treating Pressure: Max. 2500 Min. 2390 Avg. 2400

Avg. Inj. Rate 32.0 BPM ISIP 1400 @ 3:45 ~~AM~~:PM 5 min. SIP 1200

10 min. SIP 1100 15 min. SIP 1050 Other ____

EQUIPMENT USED

Service Company: Halliburton HHP 1882

By: Jeff Beardmore Date Fractured: 11/8/77

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FORM NO. 989 1M 9/66 M'G. 1917

PENNZOIL COMPANY

NEW WELL REPORT

LEASE NO. 47082-00 71.47 ACRES — WORKING DISTRICT Southern Area

Hilbert Estate et al Unit FARM — WELL NO. 1 N. S. 81 E. W. 73 Map 124-W

Duval District DISTRICT OR TOWNSHIP — Lincoln COUNTY — Garretts Bend QUAD.

LOCATION MADE July 18, 19 77 — DRILLING COMMENCED October 28, 19 77

DRILLING EQUIPMENT USED ☐ SPUDDER ☒ ROTARY ☐ — DRILLING COMPLETED November 1, 19 77

DRILLING EQUIPMENT FURNISHED BY Clint Hurt and Associates, Inc. — TOTAL DEPTH 2437 SAND Berea

ELEVATION: FLOOR 890.70 — DRILLING CONTRACTOR Clint Hurt and Associates, Inc.

ELEVATION: GROUND 880.70 — WORK ORDER NO.

FORMATION RECORD

KIND	TOP	BOTTOM	STEEL LINE MEAS.	TEST	KIND	TOP	BOTTOM	STEEL LINE MEAS.	TEST
Substructure	0	10							
Shale	10	256							
Sand	256	390							
Shale	390	624							
Sand	624	830							
Shale	830	970							
Silty Shale	970	1010							
Salt Sand	1010	1102							
Shale	1102	1109							
Sand	1109	1156							
Shale	1156	1180							
Sand	1180	1250							
Shale	1250	1336							
Silty Shale	1336	1396							
Salt Sand	1396	1558							
Shale	1558	1596							
Salt Sand	1596	1650							
Little Lime	1650	1676							
Pencil Cave	1676	1682							
Big Lime	1682	1868							
McCrady Shale	1868	1888							
Big Injun	1888	1926							
Shale	1926	2016							
Wier Sand	2016	2074							
Shale	2074	2344							
Coffee Shale	2344	2364							
Berea Sand	2364	2386							
Shale	2386	2437							
Total Depth		2437		PBD 2416					
Logged By:	Basin	Surveys		11-1-77 to 2442'					

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(OVER)

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WW-4A
Revised 6-07

1) Date: June 16, 2016
2) Operator's Well Number
Hilbert Estate 1

3) API Well No.: 47 - 043 - 1806

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: A. J. & D. Q. Wood ✓
Address: 610 Kanawha Terrace
St. Albans, WV 25177
(b) Name: Carolyn Pauley ✓
Address: 23 Hazy Lane
St. Albans, WV 25177
(c) Name:
Address:

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:

6) Inspector: Jeffery L. Smith
Address: 5369 Big Tyler Road
Cross Lanes, WV 25313
Telephone: 681-313-6743

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
MARK J SCHALL
H G Energy L L C
PO Box 5519, Vienna, WV 26105
My Commission Expires November 2, 2021

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 16th day of June
Notary Public
My Commission Expires NOVEMBER 2ND, 2021

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.

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WW-9
(5/16)

API Number 47 - 043 - 1806 4301806P
Operator's Well No. Hilbert Estate 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) Laurel 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 WILL BE CONTAINED IN TANKS BEFORE DISPOSING OFF-SITE.

_____ 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.

gwm

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) NA

-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

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

Notary Public

My commission expires NOVEMBER 2ND, 2021

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OFFICIAL SEAL
NOTARY PUBLIC, STATE OF WEST VIRGINIA
MARK J SCHALL
H G Energy L L C
PO Box 5519, Vienna, WV 26105
My Commission Expires November 2, 2021

4301606P

Form WW-9

Operator's Well No. Hilbert Estate 1

Proposed Revegetation Treatment: Acres Disturbed 0.9 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 In Place At All Times **

Attach:
Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, provide water volume, include dimensions (L, W, D) of the pit, and dimensions (L, W), and area in acres, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: Jeffrey Smith

Comments: All sediment control is to be removed prior to release.

Title: Oil & Gas Inspector Date: 06/16/2016

Field Reviewed? (✓) Yes ( ) No

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WW-9- GPP
Rev. 5/16

Page _____ of _____
API Number 47 - 043 - 01806
Operator's Well No. Hilbert Estate 1

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

Operator Name: HG Energy, LLC

Watershed (HUC 10): Laurel Fork Quad: Garrett's Bend 7.5'

Farm Name: Hilbert Estate

1. List the procedures used for the treatment and discharge of fluids. Include a list of all operations that could contaminate the groundwater.

NA

2. Describe procedures and equipment used to protect groundwater quality from the list of potential contaminant sources above.

NA

3. List the closest water body, distance to closest water body, and distance from closest Well Head Protection Area to the discharge area.

NA

4. Summarize all activities at your facility that are already regulated for groundwater protection.

NA

5. Discuss any existing groundwater quality data for your facility or an adjacent property.

4301806P

NA

6. Provide a statement that no waste material will be used for deicing or fill material on the property.

NA

7. Describe the groundwater protection instruction and training to be provided to the employees. Job procedures shall provide direction on how to prevent groundwater contamination.

NA

8. Provide provisions and frequency for inspections of all GPP elements and equipment.

NA

Signature: Diane White

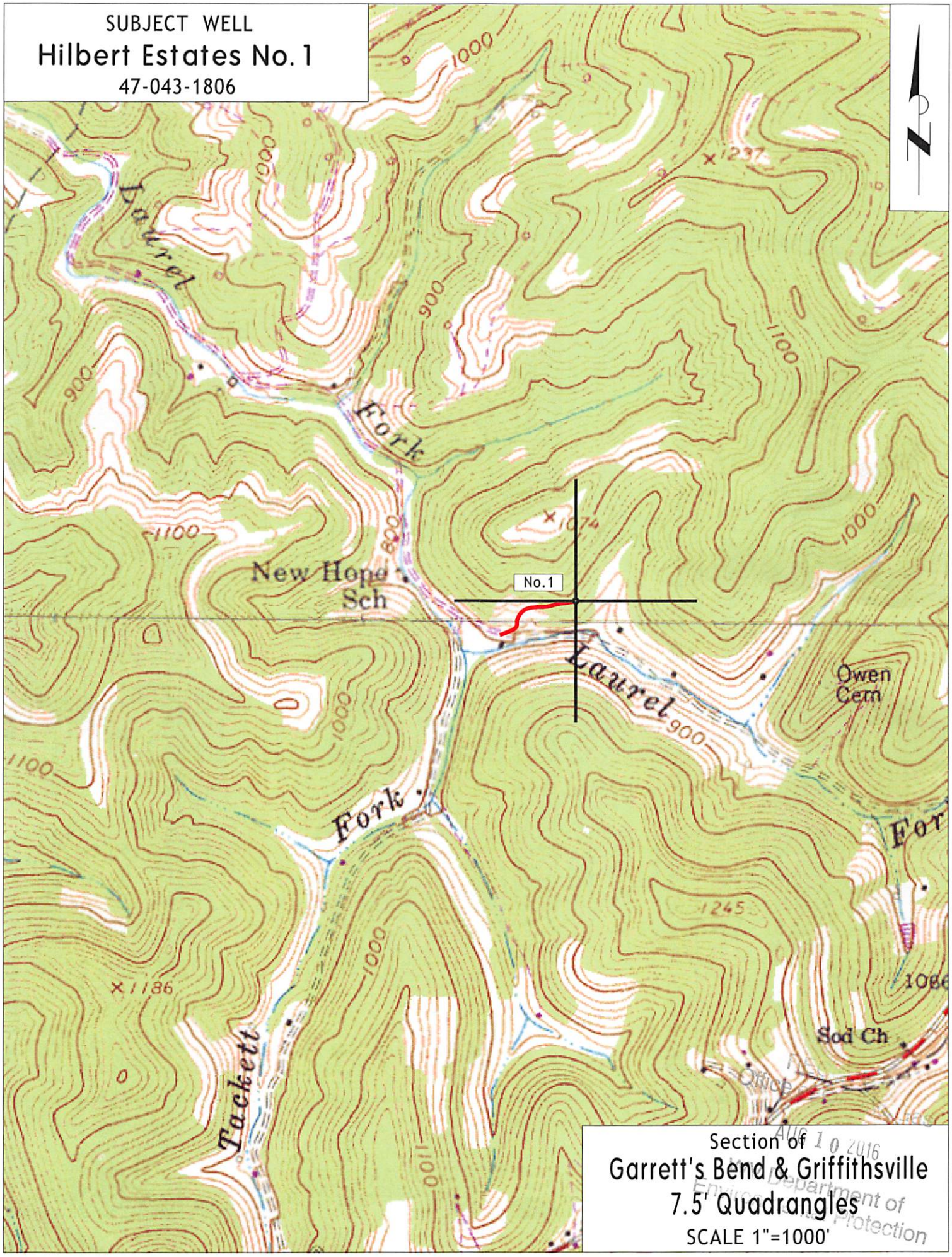
Date: 06/16/2016

4301806P

SUBJECT WELL

Hilbert Estates No. 1

47-043-1806



Section of

Garrett's Bend & Griffithsville

7.5' Quadrangles

SCALE 1"=1000'

AUG 10 2016
West Virginia Department of Environmental Protection

4301806 P

WW-7
5-02

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

API: 47- 043 - 1806 **WELL NO:** No.1

FARM NAME: Hilbert Estates

RESPONSIBLE PARTY NAME: HG Energy, LLC

COUNTY: Lincoln **DISTRICT:** Duval

QUADRANGLE: Garrett's Bend 7.5'

SURFACE OWNER: Carolyn Pauley

ROYALTY OWNER: HG Energy LLC et al.

UTM GPS NORTHING: 4,234,008

UTM GPS EASTING: 421,330 **GPS ELEVATION:** 267 m.

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 White — Designated Agent

Signature — Title

September 4, 2014

Date

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Office of Oil and Gas
AUG 10 2016
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