



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

Promoting a healthy environment.

11/04/2016

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.

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

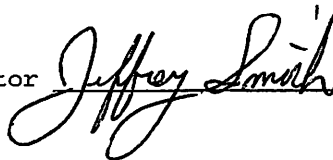
- 4) Well Type: Oil / Gas / Liquid injection _____ / Waste disposal _____ /
(If "Gas, Production or Underground storage _____) Deep _____ / Shallow
- 5) Location: Elevation 881' Watershed Laurel Fork
District Duval County Lincoln Quadrangle Garrett's Bend 7.5'
- 6) Well Operator HG Energy, LLC 7) Designated Agent Diane White
Address 5260 Dupont Road Address 5260 Dupont Road
Parkersburg, WV 26101 Parkersburg, WV 26101
- 8) Oil and Gas Inspector to be notified 9) Plugging Contractor
Name Jeffery L. Smith Name To Be Determined Upon Approval of Permit
Address 5369 Big Tyler Road Address _____
Cross Lanes, WV 25313

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



Date

RECEIVED
Office of Oil and Gas
8-1-16
AUG 10 2016

WV Department of Environmental Protection
11/04/2016

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

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

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

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

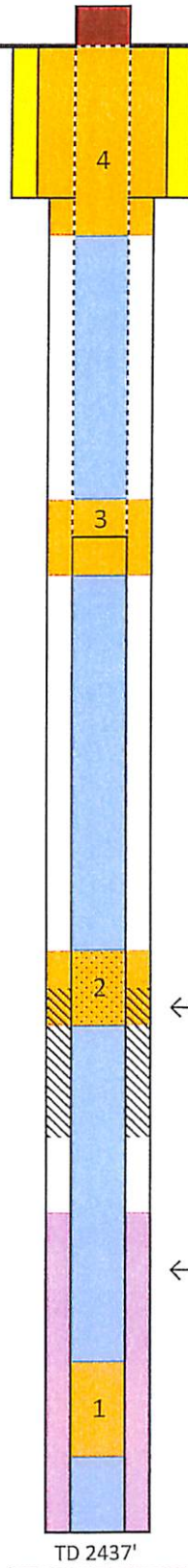
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Environmental Protection
11/04/2016

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.

Hole Size 6.75" →



← 185 sacks cement to surface

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

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



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

← Big Lime 1682' - 1868'

← 75 Sacks Cement T.O.C. 1976'

← Highest Perforation 2372'

FILED
 Office of Oil and Gas
 AUG 10 2016
 WV Department of
 Environmental Protection
 11/04/2016

PENNZOIL COMPANY
Well Completion Report

Lease: HILBERT ESTATE Well No. 1 New Well 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'

Plug Back Depth: 2416' Gas: From 2364' to 2386'
From _____ to _____

Production	Initial	Present	After Fracture
Oil	_____	_____	_____
Gas	_____	_____	_____

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

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

Production Csg. set @ 4-1/2" 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 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

Type	Fluid Lease Crude	Sand	Acid	Solvent	Gel	Breaking Agent	Fluid Loss	F.R. Agent	N.E. Agent
		<u>20/40</u>	<u>15% HCl</u>	<u>Parathin</u>					
Amount	<u>552</u>	<u>27,000</u>	<u>500</u>	<u>1 drum</u>					

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

Avg. Inj. Rate 32.0 BPM ISIP 1400 @ 3:45 ~~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

Oil and Gas
AUG 12 2016
11/04/2016
Environmental Protection

11/04/2016

PENNZOIL COMPANY
NEW WELL REPORT

LEASE No. 47082-00 71.47 ACRES WORKING DISTRICT Southern Area
Hilbert Estate et al Unit FARM Map 124-W
WELL No. 1 N. 81 S. 81 E. 73 W. 73
Duval District DISTRICT OR TOWNSHIP Lincoln COUNTY Garretts Bend QUAD.
LOCATION MADE July 18, 19 77
DRILLING EQUIPMENT USED SPUDDER ROTARY
DRILLING EQUIPMENT CLINT HURT AND ASSOCIATES, INC. FURNISHED BY
ELEVATION: FLOOR 890.70
ELEVATION: GROUND 880.70
DRILLING COMMENCED October 28, 19 77
DRILLING COMPLETED November 1, 19 77
TOTAL DEPTH 2437 SAND Berea
DRILLING CONTRACTOR Clint Hurt and Associates, Inc.
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							
McCraedy 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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Office of Oil and Gas
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WV Department of
Environmental Protection
11/04/2016

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 OF APPLICATION TO PLUG AND ABANDON A WELL

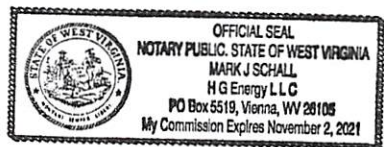
4) Surface Owner(s) to be served:	5) (a) Coal Operator
(a) Name <u>A. J. & D. Q. Wood</u> ✓	Name <u>NA</u>
Address <u>610 Kanawha Terrace</u>	Address _____
<u>St. Albans, WV 25177</u>	_____
(b) Name <u>Carolyn Pauley</u> ✓	(b) Coal Owner(s) with Declaration
Address <u>23 Hazy Lane</u>	Name <u>NA</u>
<u>St. Albans, WV 25177</u>	Address _____
(c) Name _____	Name _____
Address _____	Address _____
6) Inspector <u>Jeffery L. Smith</u>	(c) Coal Lessee with Declaration
Address <u>5369 Big Tyler Road</u>	Name <u>NA</u>
<u>Cross Lanes, WV 25313</u>	Address _____
Telephone <u>681-313-6743</u>	_____

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.



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 depprivacyofficer@wv.gov.

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 11/04/2016

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:

- 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.)

ANY WELL EFFLUENT WILL BE CONTAINED IN TANKS BEFORE DISPOSING OFF-SITE.

gmm

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

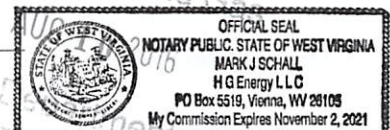
Company Official Title Agent

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

[Handwritten Signature]

Notary Public

My commission expires NOVEMBER 2ND, 2021



11/04/2016

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Office of Oil and Gas
WV DEPARTMENT OF ENVIRONMENTAL PROTECTION

430606P

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	<u>40</u>	Tall Fescue	<u>40</u>
Ladino Clover	<u>5</u>	Ladino Clover	<u>5</u>

**** 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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11/04/2016

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.

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

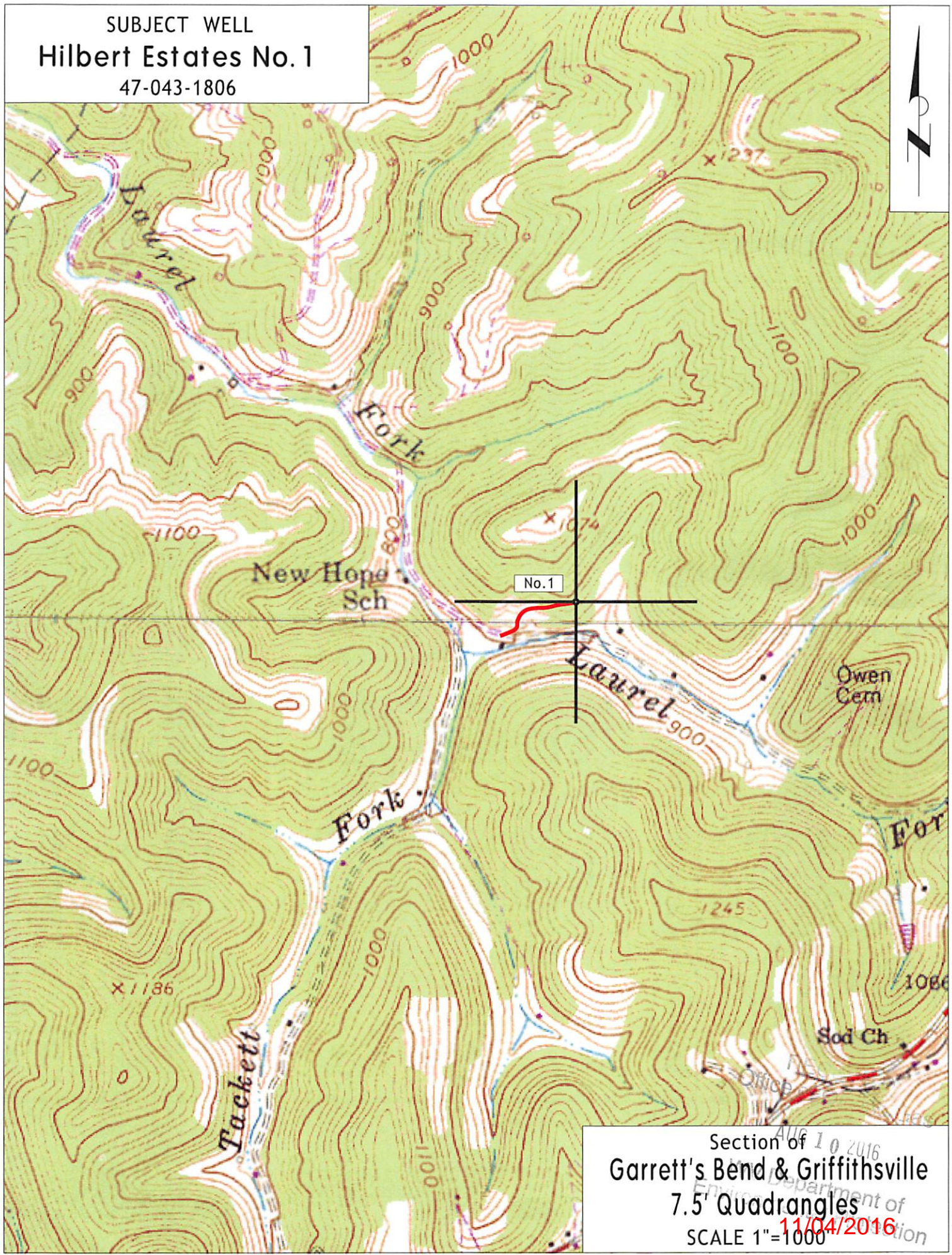
8. Provide provisions and frequency for inspections of all GPP elements and equipment.

NA

Signature: Diane White

Date: 06/16/2016

SUBJECT WELL
Hilbert Estates No. 1
47-043-1806



Section of 10 2016
Garrett's Bend & Griffithsville
7.5' Quadrangles
SCALE 1"=1000
11/04/2016

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	<input type="checkbox"/>	Post Processed Differential	<input type="checkbox"/>
		Real-Time Differential	<input type="checkbox"/>
Mapping Grade GPS	<input checked="" type="checkbox"/>	Post Processed Differential	<input checked="" type="checkbox"/>
		Real-Time Differential	<input type="checkbox"/>

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
Signature

September 4, 2014
Date

Designated Agent [Signature]
Title

Office of Oil and Gas
AUG 10 2016
WV Department of Environmental Protection
11/04/2016