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

Friday, October 28, 2016
WELL WORK PERMIT
Vertical / Plugging

HG ENERGY, LLC
5260 DUPONT ROAD

PARKERSBURG, WV 26101

Re: Permit approval for 2
47-043-00820-00-00

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: 2
Farm Name: BOWMAN, SAMUEL
U.S. WELL NUMBER: 47-043-00820-00-00
Vertical / Plugging
Date Issued: 10/28/2016

4300820P

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.

4300820P

WW-4B
Rev. 2/01

1) Date October 3, 2016
2) Operator's Well No. Samuel Bowman 2 - DNP
3) API Well No. 47- 043 - 0820

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 1022' Watershed Hayzlett 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 Jeffrey L. Smith
Address 5349 Karen Circle - Apt. 2101
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.

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Work order approved by inspector Jeffrey Smith Date 10-5-16

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WW-4B - Conti
Rev. 2/01

1) Date: October 3, 2016
2) Operator's Well Number
Samuel Bowman 2 - DNP
3) API Well No: 47 - 043 - 0820
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: 1022' 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 Jeffery L. Smith
Address 5349 Karen Circle, Apt. # 2101
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- 2,520'

Manners of plugging:
Plug #1 - 2450' - 2350'
Located above highest perforation
Perforate 1 shot every 10' (2450' - 2350')
Plug # 2 - 1450' - 1350'
Located above the salt sand
Perforate 1 shot every 10' (1450' - 1350')
Plug #3 - 1075' - 750'
Free point, part and pull 6 5/8" casing at approx 800'
Perforate through elevation and 8 1/4" casing shoe 1 shot every 10' (1075' - 800')
Plug #3 is to cover 6 5/8" casing stub, estimated at 800'
Plug #4 - 450' - 350'
Located at 8 1/4" casing stub and fresh water
Perforate 1 shot every 10' if 6 5/8" casing is present
Plug #5 - 100' - 0'
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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4300820P

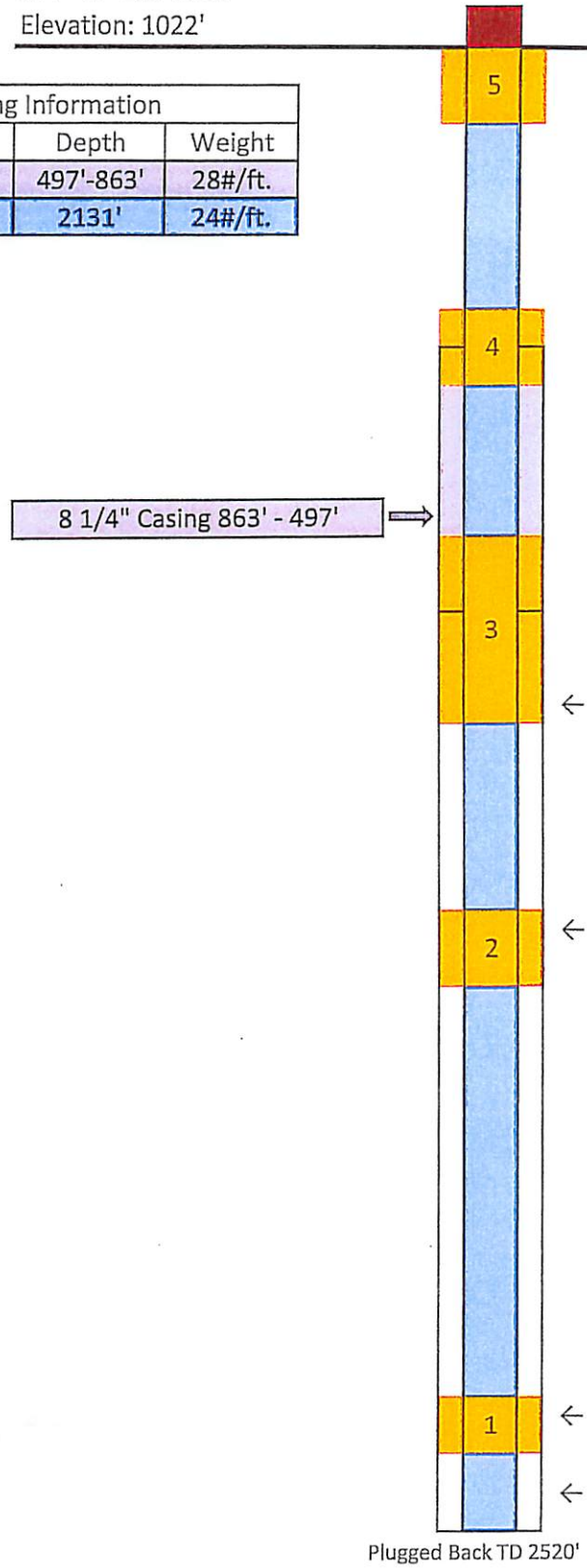
Well: Samuel Bowman (D&P) #2
API - 47-043-0820
Elevation: 1022'

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 1/4"	497'-863'	28#/ft.
6 5/8"	2131'	24#/ft.

Freepoint Cut and Pull Casing	
Size	Approx. Depth
6 5/8"	800'

Cement Plugs		
NO.	Bottom	Top
1	2450	2350
2	1450	1350
3	1075	750
4	450	350
5	100	0



← Perforate 1075' - 800' for plug #3

JS

← Perforate 1450' - 1350' for plug #2

← Perforate 2450' - 2350' for plug #1

← Highest Perforation 2504'

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47-043-0820

WEST VIRGINIA DEPARTMENT OF MINES
OIL & GAS DIVISION
WELL RECORD

Permit No. Lin 820
St. Albans Quad.
Company — Cambridge Gas Company
Address — Harvard Gas Company, Chas., W.Va.
Farm — Samuel Bowman Acres 147
Location — Elev. 1021.9
Well No. — 2
District — Duval
Surface — Lincoln County
Mineral — D.W. Webb et al
Commenced — Jan. 1,1948
Completed — June 19,1948
Date shot — 3-25-48 Depth 2469 to 2504
Oil
Well

Oil Well
CASING & TUBING

10	20	20
8¼	863	497
6 5/8	2131	2131
2	2518	2518

No coal

DEC 14 1948

Clay	0	20
Sandy Lime	20	50
Slate White	50	150
Red Rock	150	172
Slate White	172	400
Sandy Lime	400	550
Sand White	550	610
Slate White	610	625
White Sand	625	760
Slate & Shells	760	873
Sandy Lime	873	1000
Slate & Shells	1000	1175
Salt Sand	1175	1210
Dark Slate	1210	1225
White Sand	1225	1400
Break	1400	1405
Salt Sand	1405	1760
Slate & Shells	1760	1793
Little Lime	1793	1828
Pencil Cave	1828	1832
Big Lime	1832	2013
Injun Gray	2013	2062
Slate & Shells	2062	2090
Lime Shell	2090	2110
Slate White	2110	2113
Big Shell	2113	2200
Slate & Shells	2200	2420
Oil Shell	2420	2445
White Slate	2445	2458
Shell Brown	2458	2466
Brown Shale	2466	2486
Berea	2486	2506
Shell	2506	2512
Slate	2512	2548
Shell	2548	2558
Slate	2558	2612
Shell	2612	2624
Slate & Shells	2624	3660
Brown Shale	3660	3700
Slate	3700	3795
Brown Shale	3795	3815
Slate	3815	3890
Brown Shale	3890	3925
Slate	3925	3940
Brown Shale	3940	4080
White Slate	4080	4125
T.D.		4125

This well was not shot in the Shale, A Bridge was set in the hole at 2590' and the hole was filled solid to 2520'. The drilling tools were run on this bridge until it was perfectly solid.

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION
CHARLESTON

WELL LOCATION MAP

Engineer
Engineer's Registration No.
File No. Drawing No.
Date Scale

Dotted lines are lines of original tracing.

MUEL BOWMAN No. 2 — CAMBRIDGE GAS Co. & HARVARD GAS Co. — LIN-820

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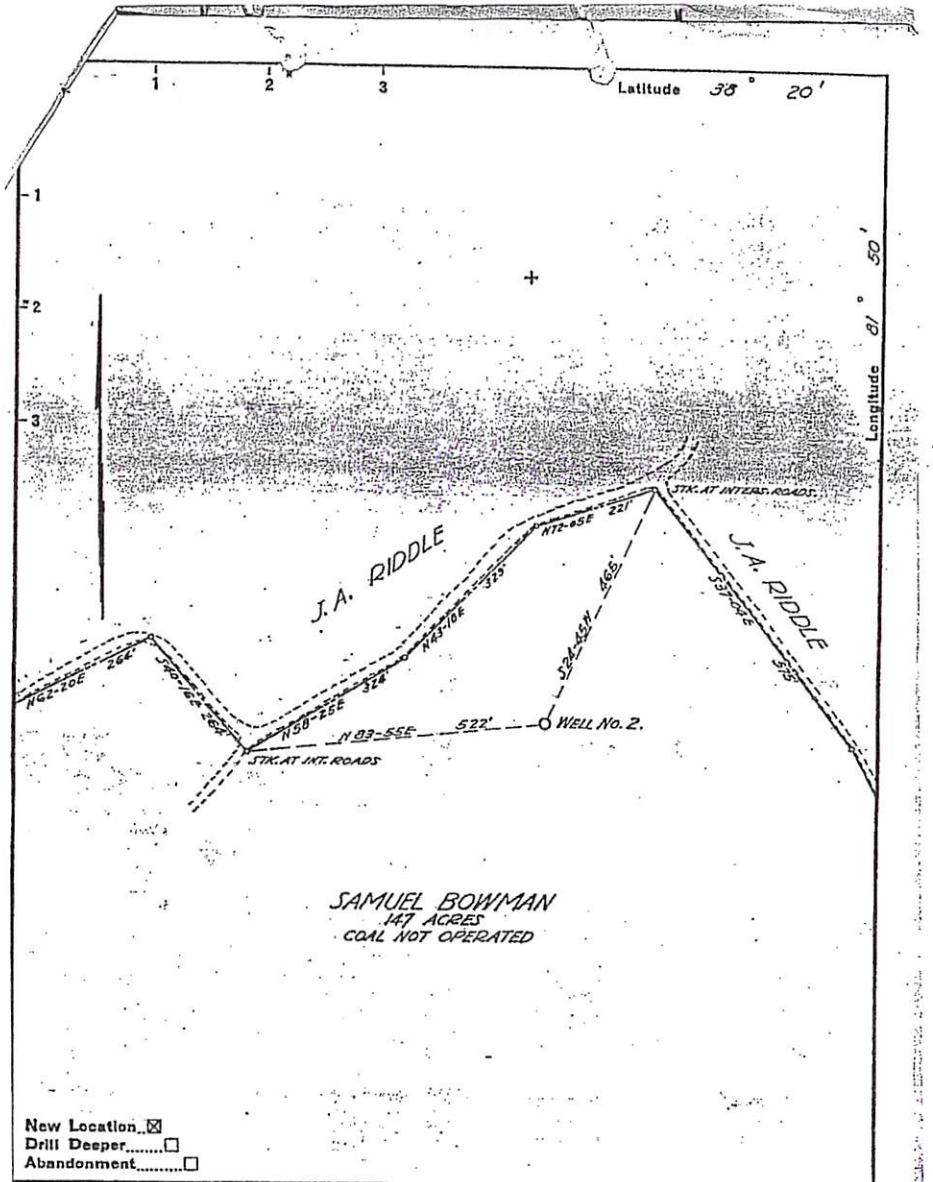
4300820



New Location ☒
Drill Deeper ☐
Abandonment ☐

Company HARVARD GAS CO. & CAMBRIDGE GAS CO
Address CHARLESTON-W. VA.
Farm SAMUEL BOWMAN
Tract ____ Acres 147 Lease No. ____
Well (Farm) No. 2 Serial No. ____
Elevation (Spirit Level) 1021.2
Quadrangle ST. ALBANS-S
County LINCOLN District DUVAL
Engineer John H. Bartlett
Engineer's Registration No. 1442
File No. ____ Drawing No. ____
Date DEC. 15-1947 Scale 1" = 200'

"INFERNAL" TRACING CLOTH
K & E CO., N.Y.

STATE OF WEST VIRGINIA
DEPARTMENT OF MINES
OIL AND GAS DIVISION
CHARLESTON

WELL LOCATION MAP

FILE NO. Lin-820

+ Denotes location of well on United States Topographic Maps, scale 1 to 62,500, latitude and longitude lines being represented by border lines as shown.

— Denotes one inch spaces on border line of original tracing.

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4300820P

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WW-4A
Revised 6-07

1) Date: October 3, 2016
2) Operator's Well Number
Samuel Bowman 2 - DNP

3) API Well No.: 47 - 043 - 0820

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: Floyd & Mary Dolin, Jr.
Address: 2220 Falls Creek Road
Tornado, WV 25202
(b) Name:
Address:
(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: 5349 Karen Circle - Apt 2101
Cross Lanes, WV 25313
Telephone:

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 3rd day of October 2016
Notary Public
My Commission Expires 11-2-2021

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 - 0820
Operator's Well No.

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) Hayzlett 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: NA

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 HAULED FOR DISPOSAL.

_____ 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 encountered will be hauled for disposal at an authorized disposal site

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

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

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

Additives to be used in drilling medium? NA

Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. 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 3rd day of October, 20 16

Notary Public

My commission expires 11-2-2021

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

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Form WW-9

Operator's Well No._____

Proposed Revegetation Treatment: Acres Disturbed 0.6 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

JS

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 to be removed prior to release

Title: Oil + Gas Inspector Date: 10-5-16

Field Reviewed? (✓) Yes ( ) No

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WW-9- GPP
Rev. 5/16

Page _____ of _____
API Number 47 - 043 - 0820
Operator's Well No. Samuel Bowman 2-DNP

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

Operator Name: HG Energy, LLC

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

Farm Name: _____

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.

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WW-9- GPP
Rev. 5/16

Page _____ of _____
API Number 47 - 043 - 0820
Operator's Well No. _____

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: Jeffrey Smith DCW

Date: 10-5-16

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43 00820 P

SUBJECT WELL

Samuel Bowman No. 2-DNP

47-043-0820

Section of

Garrett's Bend 7.5' Quadrangle

SCALE 1"=1000'

OCT 14 2016
WV Department of
Environmental Protection

4300820 P

WW-7
5-02

West Virginia Department of Environmental Protection
Office of Oil & Gas

WELL LOCATION FORM: GPS

API: 47- 043 - 0820 **WELL NO:** 2-DNP

FARM NAME: Samuel Bowman No.2-DNP

RESPONSIBLE PARTY NAME: H.G. Energy, LLC

COUNTY: Lincoln **DISTRICT:** Duval

QUADRANGLE: Garrett's Bend 7.5'

SURFACE OWNER: Floyd & Mary Dolin Jr.

ROYALTY OWNER: HG Energy, LLC

UTM GPS NORTHING: 4,240,166 (NAD 83)

UTM GPS EASTING: 422,199 (NAD 83) **GPS ELEVATION:** 310 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 C. White Designated Agent
Signature Title

September 30, 2016
Date