

#### west virginia department of environmental protection

Office of Oil and Gas 601 57th Street SE Charleston, WV 25304 (304) 926-0450 (304) 926-0452 fax Earl Ray Tomblin, Governor Randy C. Huffman, Cabinet Secretary www.dep.wv.gov

October 07, 2013

#### WELL WORK PERMIT Re-Work

This permit, API Well Number: 47-9501627, issued to HG ENERGY, LLC, 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 all 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 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.

In addition to the applicable requirements of this permit, and the statutes and rules governing oil and gas activity in WV, this permit may contain specific conditions which must be followed. Permit conditions are attached to this cover letter.

Per 35CSR-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) 926-0499 ext. 1654.

James Martin

Chief

Operator's Well No: E. LONGSTRETH E-12

Farm Name: STACKPOLE, ALLEN D., ET AL

API Well Number: 47-9501627 Permit Type: Re-Work

Date Issued: 10/07/2013

WW-3B 10/07



1) Date	1-0	A	ugust 13,	2013	14	
2) Operator's Well	No.	F	Elizabeth I	ongst	reth No.	E-12
3) API Well No.	47	-	095	110	1627	
	State		County		Perm	nit
4) UIC Permit No.		τ	JIC2R0950	1AP		

## 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

		2214	d Injectior	1 X	-	Gas Injection	(not store	1ge)	_ Waste	Disposal		
6) LOCATION	N:	Elevation	1004	,		Wat	ershed	Stack	oole Run			
4.14.000	Distric		McElroy	05	Cou	inty Tyler		1	Quadrangle	Cen	terpoint 7.5"	286
7) WELL OPE	ERATOR:	HG Ene	rgy, LLC		4944979	948 8) DE	SIGNATE	D AGENT	- <u>-</u>	like Kirsc	h	
i, while or	310111 010.		pont Road		1011011	0) DE	DIGITAL	D AGEIVI		260 Dupo		
			burg, WV								g, WV 26101	
9) OIL & GAS	INSPECT	OR TO BE	NOTIFIE	£D.		10) D	RILLING	CONTRAC			O.	
o, oil a are		Joe Tayl		JD.		10) 1	TUDDING	Name				
			ylick Roa	d				Address				
		-	VV 25271		-				-			
11) PROPOSEI	D WELL W	ORK.	Drill			Drill Deeper		Redril	1 0	Stimulate	X	-
11) 11101 0515	o mada m	OILII.			ld Format			New Form			Convert	_
						in Well (specify)		21011 2021	_			_
12) Geological t	target form	ation		Gordo	n	Dept	n	2,863	Ft. (Top) to		2,882 Ft. (J	Bottom)
13) Estimated	depth of cor	npleted w	ell (or actu	ıal dept	h of existi	ng well)		3025'	F	t.		
14) Approximat	te water str	ata depth	s:	Fresh		200	Ft.		Salt	1,37	5 Ft.	
15) Approximat	te coal sean	n depths:			824		Ft.					
16) Is coal bein	g mined in	the area?			Ye	es	X	No				
17) Virgin reser	rvoir pressu	ıre in targ	et formati	on:	7	1,	400	psig.	Source		Estimated	
									_			
18) Estimated	reservoir fra	acture pre	ssure:			3,	500	psig.				
				ER ATTO	-SMC-			psig.	Bottom Holo	Риссания	0 990 -	ani.
19) MAXIMUM	PROPOSE	ED INJEC	TION OPI			Volume per hour	25 bbl		Bottom Hole		2,332 p	
19) MAXIMUM 20) DETAILED	PROPOSE IDENTIFI	ED INJEC	TION OPI OF MATE	RIALS	TO BE IN		25 bbl UDING Al				2,332 p ced water, bac	
19) MAXIMUM 20) DETAILED and other cl	I PROPOSE IDENTIFI hemicals as	ED INJEC	TION OPI OF MATE maintain	RIALS	TO BE IN quality ar	Volume per hour NJECTED, INCL ad improve oil rec	25 bbl UDING Al					
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19) MAXIMUM 20) DETAILED and other cl 21) FILTERS (I	PROPOSE DIDENTIFI hemicals as	ED INJEC	TION OPI OF MATE maintain Cartridge	CRIALS water	TO BE IN quality ar and/or co	Volume per hour NJECTED, INCL ad improve oil rec	25 bbl UDING Al overy.	DDITIVES		er, produc		
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depprivacyofficer@wv.gov

WW-3A 10/07

5) Surface Owner(s) To Be Served

Name

Name

Address

Allen D. Stackpole

Jacksonburg, WV 26377

STACKPOLE

Charleston, WV 25305



1) Date:		August 13	, 2013			
2) Operator's We	ll No.	Elizabeth Longstreth No. E-12				
3) API Well No.	47	095	•	1627		
	State	County		Permit		
4) UIC Permit N	0.	UIC2R095	01AP			

NA

7 (b) Coal Owner(s) With Declaration Of Record

STATE OF WEST VIRGINIA

7 (a) Coal Operator

Name

Address

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

Address 4 C 6 L Box 46	Name	NA
JACKSONBURG, WV 26377	Address	
(c) Name		
Address	Name	
	Address	
6) Inspector Joe Taylor	7(c) Coal Lessee Wi	th Declaration Of Record
Address 1478 Claylick Road	-17272737.	NA
Ripley, WV 25271	( <del></del>	
Telephone 304-380-7469		
TO THE PERSON(S) NAMED ABOVE: You should have	received this for	m and the following documents:
		A STATE OF THE PROPERTY OF THE
(1) The Application for a Liquid Injection or Waste Disposal W	en work Permit of	n 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	m WW Grand	
(3) The Construction and Reclamation Plan on Form WW-9 (un		is only to plug a well)
which sets out the plan for erosion and sediment control an		
which sets out the plan for erosion and sediment control an	d for reciamation	tor the site and access road.
The date proposed for the first injection or waste disposal is		
THE REASON YOU RECEIVED THESE DOCUMENTS IS THAT YO	J HAVE RIGHTS RI	EGARDING THE APPLICATION
WHICH ARE SUMMARIZED IN THE "INSTRUCTIONS" ON FORM V	WW-3(A) DESIGNAT	TED TO YOU. 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	d well operator propose	s to file or has filed this Notice and
Application and accompanying documents for a Well Work Permit with the Chic		The state of the s
Environmental Protection, with respect to a well at the location described on the		and the second s
WW-6. Copies of this Notice, the Application, the plat, and the Construction and	Reclamation Plan hav	e been mailed by registered or
certified mail or delivered by hand to the person(s) named above (or by publicati	on in certain circumsta	nnces) on or before the day of the
mailing or delivery to the Chief.		
The person signing this document shall make the	following certification	n: WV Department of
The person eighing this document shall make the	ionowing cortificatio	
I certify under penalty of law that I have personally examined and am	Well Operator	HG Energy, LLC
amiliar with the information submitted in this document and all attachments	Address	5260 Dupont Road
and that, based on my inquiry of those individuals immediately responsible		Parkersburg, WV 26101
for obtaining the information, I believe that the information is true, accurate	270	
and complete. I am aware that there are significant penalties for submitting	By:	Diane C. White
alse information, including the possibility of fine and imprisonment."	Its:	Accountant
		2.0
	Signature	Diane CWhite
Oil and Gas Privacy Notice		_ CONTROL COOTING

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 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 Later 11/201

have any questions about our use of your personal information, please contact DEP's Chief Privacy Officer at:

U.S. Postal Service TM CERTIFIED MAIL™ RECEIPT 3032 (Domestic Mail Only; No Insurance Coverage Provided) For delivery information visit our website at www.usps.com 20 \$1.52 0777 PB-1 Postage \$3.10 09 Certified Fee Return Receipt Fee (Endorsement Required) 000 Postmark \$2,55 Here Restricted Delivery Fee (Endorsement Required) \$0.00 3460 Total Postage & Fees \$ \$7.17 08/13/2013 EL EIZ Sent To 7075 Stackpole Allen D. Street, Apt. No.; or PO Box No. HC 62 Box 46 City, State, ZIP+4 Jackson burg, WV 26377 PS Form 3800, August 2006

Office of Oil Gas

SEP 1 1 7013

WV Department of Environmental Protection Form WW-9. Rev. 10/94

**	1.5	:	:.	1.	Page	3 ::	of	::	:3	
			API	Num	ber 47-	095	-		1627	
Opera	ator's	Well 1	No.	Eliza	abeth Lo	ngstret	th No.	E-1	2	

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

CONSTRUCTION AND RECLAMATION PLAN AND SITE REGISTRATION APPLICATION FORM GENERAL PERMIT FOR OIL AND GAS PIT WASTE DISCHARGE

Operator	HG Ener	gy, LLC			C	P Code	4944	97948
Watershed	Stackpole	Run			Quadrangle	Cent	erpoint 7.	5"
Elevation	1004'	County	Tyler		District	I	AcElroy	
Description of a	nticipated Pit Waste:	Fluids encou	untered in drilling	and stimu	lating existin	g well.		
Do you anticipa	te more than 5,000 bbl	s of water to com	plete the proposed w	vell work	Yes	No	X	
Will a synthetic	liner be used in pit?	Yes	If so, what mil.?	20 1	/Iil.			
Proposed Dispos	sal Method For Treated	l Pit Wastes:						
_	X Land Appl							
-			C Permit Number	-				)
		API Number	Man o c 1	11 \				)
-	Other	Sposal (Supply Fo	orm WW-9 for dispos	sal location)				,
D.:111:				3	T.A.			
	n anticipated for this w f oilbased, what type?	and the same of th	and the second contract of the second contrac	1	JA			
Additives to be u		bynumenc, petror	eum, etc.				-	-
Drill cuttings dis	sposal method? Leave	in pit, landfill, re	emoved offsite, etc.	Leave	in pit			
- If	fleft in pit and plan to	solidify, what me	edium will be used?	Coment lim	e, sawdust 1	Vative so	oil, cemen	t, lime
		boundary, marce and	sulum win be useu:	Cement, IIII				
I conssued on Augusthat the provision	ertify that I understan t 1, 2005, by the Office ons of the permit are er	permit number?  d and agree to th  of Oil and Gas o	e terms and condition f the West Virginia I . Violations of any te	ons of the GE Department	of Environmer	ital Prote	ction. I und	ERMIT derstand
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Property Boundary

Legend

Diversion

•	Road	·		Spring.		<b>-&gt;</b>
Existing	1			West Smot	74	
•	į.	—xxx		Wet Spot Drain Pipe		>
Planned	ļ		-,	Waterway		→ <del>( &gt;</del>
<b>.</b>	Stream	-7 -7	**	Cross Drain		7777
Open	Ditch		~ <del>}</del> >>			××××
	Rock	ૡૢૺૡૢૻૢૡૢ૿ૺૺ૱		Filter Strip	XXXXXX	3
•		نقاسی	>	Pit: Cut Walls	Curry	ا (
•	North	N		<u> </u>	· · ·	4
Buil	idings :			Pit: Compacted Fill Walls	5	<i>→</i>
Water	1	<u>~</u>		Area of Land		-E2)
		<b>(</b>		Application	1 ( 12. 7 7 - 1 3	
ប្រជ	ll Site	<del>\</del>		of Pit Waste		
	•			•		•
. •			Area			
Proposed Revegetation	n Treatm	ent: Acres Disturbed	Approx.	<del></del>	revegetation pH	
			Атеа	II 0.3 Ac.		
			Approx.	0.5 Ac.		
	Lime	2 Tons	s/Acre or Co	rect to pH 6.5		
)	Fertiliz	er (10-20-20 or Equivalent)	500		0 lbs. Minimum)	
·	Mulch	Straw 2	Tons/Acr	e .		
			SEED MIX	TURES		
	Area	I (Location)	•	g 100	Area II (Road)	bs/Ac.
Seed Type		Lbs/Ac.		Seed Type Tall Fescue	L	40
Tall Fescue  Ladino Clover			<del></del>	Ladino Clove	r	5
Ladino Ciovei		<u> </u>				
					<u> </u>	
Attach:						•
Drawing(s) of road, lo	ocation, p	it and proposed area for landed 7.5' topographic sheet.	d application			
Photocopied section c	DT IIIAOIA	7.5 topograpmo ancon				
		100/				
Plan approved by		NU			<u> </u>	
Comments	/					
		- /lave			Date: 9-3-13	
Title	. 000	Inspecto-			Date: 7-3-73	
Field Reviewed	7.	(V) Yes		(	) No	
	:					
			:			10/11/2013

## **Reclamation Plan For:**

# E. Longstreth No.E-12

47-095-1627

#### NOTE:

WELL LOCATION WAS BUILT AND RECLAIMED UNDER DRILLING PERMIT NO.47-095-1627. ONLY MINIMAL EARTHWORK WILL BE REQUIRED FOR PROPOSED WELL WORK. ALL DISTURBED AREAS WILL BE RE-VEGETATED AS PER THE SEEDING PLAN ON FORM WW-9. A SMALL WORKOYER PIT WILL BE CONSTRUCTED TO CONTAIN ANY FLUIDS RECOVERED DURING PROPOSED WELL WORK.

# 1

#### NOTE

REFER TO THE WVDEP
EROSION AND SEDIMENT CONTROL
FIELD MANUAL VER. MAY 2012 FOR
BMPS CONTROLLING EROSION AND
SEDIMENT FROM SOIL-DISTURBING
OPERATIONS.

Use approximately 1,500' of existing access road. Maintain all drainage structures.

Allen D. Stackpole, etal - Syrface

Allen D. Stackpole, etal - Surface

#### Notes:

- Requested permit is for workover of existing well.
- Access from County Road to well location is existing. Structures will be maintained.
- 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 work-over pit may be changed based on as-built considerations.

REGEIVED
Office of Oil § Gas

SEP 1 1 2013

WV Department of evironmental Protection

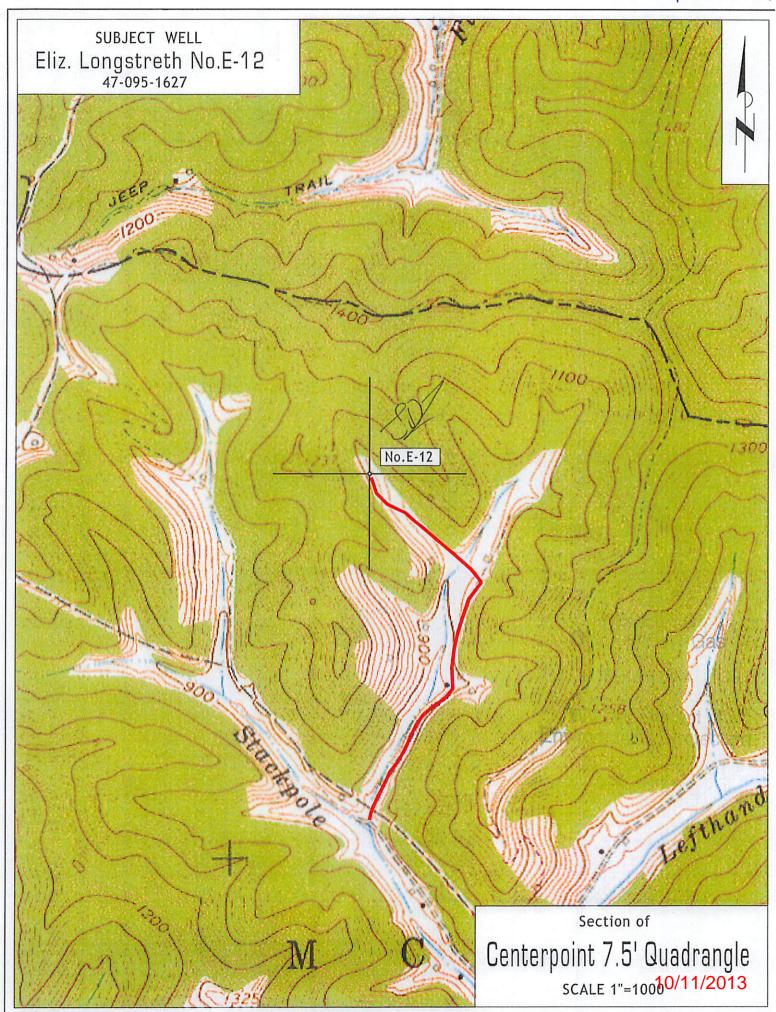
See Page 2 f

See Page 2 for Relamation Plan From Pt. (A) to Co. Rd. 13/8

10/11/2013

Page 1

Note: Drawing not to Scale



11,120'

#### **PLAT NOTES**

39° 30' 00"

The drawing shown hereon is from the original drilling permit plat dated 2/15/95.

LATITUDE

This plat has been updated to show current surface ownership and as-drilled Latitude & Longitude.

William Latitude & Longitude shown was measured by DGPS -Sub-Meter Mapping Grade (NAD 1927) · 2 E-12 CALL TABLE ABCO.E.F.O. Unit Line

- DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS.

FILE NO .\_ 1" = 1,000 MINIMUM DEGREE OF ACCURACY \_\_\_Sub-Meter PROVEN SOURCE OF

ELEVATION \_DGPS Survey

**UTM Coordinates** 

NAD 1983 (m.)

N - 4,368,928 m.

E - 525,548 m.

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 REGU-LATIONS ISSUED AND PRESCRIBED BY THE DEPART MENT OF MINES

TIMOTHY P. ROUSH

PS 793

S59° 02'W

S80° 45'W

LOCATION REFERENCES

**Existing Well** 

SSIONAL SUP

10/11/2013

WEST VIRGINIA Division of Environmental Protection Office of Oil and Gas 601 57th Street Charleston, West Virginia 25304

(Sub-Meter Mapping Grade)



July 31, 2013 DATE Eliz. Longstreth No.E-12 FARM API WELL NO.

095

\_ LIQUID INJECTION X WASTE DISPOSAL WELL TYPE: OIL \_ \_GAS\_\_ (IF "GAS") PRODUCTION \_\_\_\_ STORAGE\_\_\_ DEEP\_\_\_ SHALLOW\_ LOCATION: ELEVATION \_\_\_\_\_1,004' Stackpole Run \_ WATERSHED \_\_\_

DISTRICT McElroy COUNTY\_ QUADRANGLE Centerpoint 7.5'

SURFACE OWNER \_\_\_\_\_ Allen D. Stackpole et al OIL & GAS ROYALTY OWNER HG Energy LLC. et al

ACREAGE \_\_ 25.76 Ac. 25 Ac. \_\_ LEASE ACREAGE\_

Fee 2142-00 LEASE NO. \_ PROPOSED WORK: DRILL \_\_ CONVERT\_\_ DRILL DEEPER \_\_ REDRILL \_\_ FRACTURE OR

STIMULATE X PLUG OFF OLD FORMATION \_\_ PERFORATE NEW FORMATION \_\_\_ OTHER PHYSICAL CHANGE IN WELL (SPECIFY) .

\_ CLEAN OUT AND REPLUG. PLUG AND ABANDON\_ TARGET FORMATION \_ Gordon \_\_ ESTIMATED DEPTH\_\_ WELL OPERATOR HG Energy, LLC

3,025' DESIGNATED AGENT Mike Kirsch
ADDRESS 5260 Dupont Road

**ADDRESS** 

5260 Dupont Road Parkersburg, WV 26101

Parkersburg, WV

11-6 FORM

# West Virginia Department of Environmental Protection Office of Oil and Gas

#### NOTICE TO SURFACE OWNERS

The well operator named below is preparing to file for a permit from the state to drill a new well. Before a well work permit can be filed with the Chief of the Office of Oil and Gas, the well operator is required to have given notice of the right to request water well or spring analytical testing. This notice shall be given to the owners or occupants of land which have a water well or spring being utilized for human consumption, domestic animals, or other general use and which is located within 1000 feet of the proposed well site.

With this form, the operator is giving you notice of your right to request analytical testing, The operator is required to sample and analyze the water wells or springs of all owners or occupants who request it. Therefore if you wish to have your water well or spring tested, contact the operator named below.

All sampling shall be completed prior to drilling. Within thirty (30) days of the receipt of such sample analyses the operator shall submit the results to the Chief of the Office of Oil and Gas and to the owners or occupants who may have requested them.

If no water well or spring is located within 1000 feet, the Chief may require the operator to sample and analyze water from a water well or spring within 2000 feet of the proposed well site.

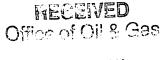
Be advised, you have the right to sample and analyze any water supply at your own expense.

The laboratory used by the operator to analyze the samples will be approved by the Chief. The operator named below has decided to use the following laboratory to analyze the water samples:

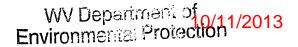
X Contractor Nam	e Sturm Environmental Services	
Well operator's	private laboratory	
Well Operator	HG Energy, LLC	
Address	5260 Dupont Road	
	Parkersburg, WV 26101	
Telephone	304-420-1119	

FOR OPERATOR'S USE ONLY: Below, or on an attached page, list those persons which were given this notice. Place an asterisk beside the one(s) that contacted you and requested sampling and analyses. If there were no requests made, indicate by underlining which one you have selected to sample and analyze. If there are no water wells or springs within 1000 feet of the proposed site please indicate such.

No known Water Supply Sources are located within 2000' of proposed well.



SEP 1 1 (3:3





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



August 13, 2013

Mr. Jeff McLaughlin WVDEP Division of Oil & Gas 601 57<sup>th</sup> Street Charleston, West Virginia 25304

RE: Elizabeth Longstreth No. E-12 (API 47-095-1627)

McElroy District, Tyler County

West Virginia

Dear Mr. McLaughlin:

Enclosed are the Forms WW-3A, WW-3B, WW-9, WW-2(B1), mylar of plat, reclamation plan, topo map and copy of the certified mailing receipt for a permit to stimulate the above-captioned injection well. Our check in the amount of \$650 is attached.

If you have any questions regarding this application, please call me at 304-420-1119 or email at dwhite@hgenergyllc.com.

Very truly yours,

Diane White

Diane C. White

Enclosures

cc: Allen D. Stackpole - Certified

Joe Taylor - Inspector

Office of On a Gas

SEP 1 1 2013

03-27-95 API# 47-095-1627 S

# State of West Virginia Division of Environmental Protection Section of Oil and Gas

## Well Operator's Report of Well Work

Farm name	STACKPOL	E, DARRELL/GRACE	Ope	rator Well	No.: E.LO	ONGSTREE	ET E-12
LOCATIO	N: Elevation:	1,004	Qua	drangle:	CENTERI	POINT	
	District: Latitude: Longitude:	MCELROY 11,150 Feet south 10,300 Feet west		Deg 30	Min 0	Sec.	
Company:	P.O. BOX 55	PRODUCTS COMPAN 519 V 26105-5519	NY .	Casing & Tubing	Used in Drilling	Left in Well	Cement Fill Up Cu. Ft.
Agent:	PHILIP S. O	NDRUSEK		Size			
Inspector: Permit Issu		3/27/95					
Well work Verbal plug		6/8/95 8/18/95		8-5/8	265'	265'	85 SKS
Rotary Total Dept	granted on:  X Cable h (feet) r depths (ft)	Rig 3,025 NA		4 1/2"	2935.7'	2935.7'	170 SKS
Salt water		NA N					
coal Depth	ng mined in area (Y/ ns (ft):	N) NA NA					3
OPEN FLO	OW DATA	*Waterflood Injection	Well		u	ECSYSI and O	las
Ga	Final open flo		MCF/d MCF/d and fina	Fina l tests	Pay zone d al open flow l open flow WV	epth (ft)	2838-2900 * Bbl/d * Bbl/d S Hours
l( ζ) Gε λ	Final open flo	ow	_MCF/d and fina	Fina	Pay zone d al open flow l open flow ssure)		Bbl/d Bbl/d rs Hours
INTERVA LOG WHI	LS, FRACTURINC CH IS A SYSTEM	FORM, PUT THE FOL FOR STIMULATING, ATIC DETAILED GEO NTEREDBY THE WE	PHYSICA LOGICA	AL CHAN L RECOR	GE, ETC.	2) THE WE	LL
		For: PENI By: Date	~	RODUCTS Funces &	COMBAN	Ž	10/11/201

Treatment: Perforated Gordon 2870-2878 (32 Holes) Treated via 4 1/2" casing with 300 gal. 15% HCl Acid, 285 BBL gelled water & 6500# of 20/40 sand.

#### Well Log:

Sand & Shale	0	-	12081
Sand	1208'	. –	12581
Sand & Shale	1258'	-	1790'
Sand	1790'	- '	1840'
Shale	1840'	•••	1985'
Sand	1985'	-	2038'
Shale	2038 <sup>t</sup>	-	2112'
Sand	2112'	-	2263'
Shale	22631		2838'
Gordon	2838'	~	2900'
T.D.	3025'		

