

#### 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

Austin Caperton , Cabinet Secretary www.dep.wv.gov

Tuesday, March 06, 2018 WELL WORK PERMIT Horizontal 6A / Drilling Deeper

HG ENERGY II APPALACHIA, LLC 5260 DUPONT ROAD

PARKERSBURG, WV 26101

Re:

Permit approval for KST5DHS

47-033-05817-00-00

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: KST5DHS

Farm Name: MCDONALD, JAMES IVAN U.S. WELL NUMBER: 47-033-05817-00-00

Horizontal 6A / Drilling Deeper

Date Issued: 3/6/2018

Promoting a healthy environment.

API Number: 33-05817 DD

## **PERMIT CONDITIONS**

West Virginia Code § 22-6A-8(d) 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. This proposed activity may require permit coverage from the United States Army Corps of Engineers (USACE). Through this permit, you are hereby being advised to consult with USACE regarding this proposed activity.
- 2. If the operator encounters an unanticipated void, or an anticipated void at an unanticipated depth, the operator shall notify the inspector within 24 hours. Modifications to the casing program may be necessary to comply with W. Va. Code § 22-6A-5a (12), which requires drilling to a minimum depth of thirty feet below the bottom of the void, and installing a minimum of twenty (20) feet of casing. Under no circumstance should the operator drill more than one hundred (100) feet below the bottom of the void or install less than twenty (20) feet of casing below the bottom of the void.
- 3. When compacting fills, each lift before compaction shall not be more than 12 inches in height, and the moisture content of the fill material shall be within limits as determined by the Standard Proctor Density test of the actual soils used in specific engineered fill, ASTM D698, Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort, to achieve 95 % compaction of the optimum density. Each lift shall be tested for compaction, with a minimum of two tests per lift per acre of fill. All test results shall be maintained on site and available for review.
- 4. Operator shall install signage per § 22-6A-8g (6) (B) at all source water locations included in their approved water management plan within 24 hours of water management plan activation.
- 5. Oil and gas water supply wells will be registered with the Office of Oil and Gas and all such wells will be constructed and plugged in accordance with the standards of the Bureau for Public Health set forth in its Legislative rule entitled *Water Well Regulations*, 64 C.S.R. 19. Operator is to contact the Bureau of Public Health regarding permit requirements. In lieu of plugging, the operator may transfer the well to the surface owner upon agreement of the parties. All drinking water wells within fifteen hundred feet of the water supply well shall be flow tested by the operator upon request of the drinking well owner prior to operating the water supply well.
- 6. Pursuant to the requirements pertaining to the sampling of domestic water supply wells/springs the operator shall, no later than thirty (30) days after receipt of analytical data provide a written copy to the Chief and any of the users who may have requested such analyses.
- 7. 24 hours prior to the initiation of the completion process the operator shall notify the Chief or his designee.
- 8. During the completion process the operator shall monitor annular pressures and report any anomaly noticed to the chief or his designee immediately.
- 9. If any explosion or other accident causing loss of life or serious personal injury occurs in or about a well or well work on a well, the well operator or its contractor shall give notice, stating the particulars of the explosion or accident, to the oil and gas inspector and the Chief, within 24 hours of said accident.
- 10. During the casing and cementing process, in the event cement does not return to the surface, the oil and gas inspector shall be notified within 24 hours.

API Number: 33-0581700

## PERMIT CONDITIONS

11. The operator shall provide to the Office of Oil and Gas the dates of each of the following within 30 days of their occurrence: completion of construction of the well pad, commencement of drilling, cessation of drilling, completion of any other permitted well work, and completion of the well. Such notice shall be provided by sending an email to DEPOOGNotify@wv.gov.

API NO. 47-33-	0581	1DD
<b>OPERATOR WELL</b>	NO. KST5 DHS	
Well Pad Name	KST5	

# STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS WELL WORK PERMIT APPLICATION

l) Well Operate	or: HG Er	nergy II Appa	alachia, 📙	494519932	Harrison	Union	West Milford
_				Operator ID	County	District	Quadrangle
?) Operator's V	Vell Numbe	r: KST5 DH	<u>S</u>	Well Pad	Name: KST5		
) Farm Name/	Surface Ow	ner: James	Ivan McDo	onald Public Roa	d Access: Stat	e County	Road 19/18
e) Elevation, cu	urrent groun	nd: <u>1134'</u>	Ele	evation, proposed	post-construction	on: 1134'	
) Well Type	(a) Gas	x	_ Oil	Unde	erground Storag	ge	
	Other						
	(b)If Gas	Shallow	<u>x</u>	Deep			
		Horizontal	<u>x</u>				
(i) Existing Pad			(a) A4: a:	This language	d Eumantad De		
-	-			pated Thickness a ticipated pressure a		essure(s):	
3) Proposed To							C
) Froposed 10 ) Formation at			Marcellus				Jan A
•			19,024'				Var in the 1
0) Proposed T						20m	300 JOB / 30 / 30 /
1) Proposed H	lorizontal L	eg Length:	11,314'	1051			<u> </u>
2) Approxima	ite Fresh Wa	ater Strata De	-	135'			
3) Method to				Offset well data			
4) Approxima	ite Saltwate	r Depths: 15	570',2355'				
5) Approxima	ite Coal Sea	m Depths: 8	80',390',10	60',1440'			
6) Approxima	ite Depth to	Possible Voi	id (coal mi	ne, karst, other): <u> </u>	None -		
17) Does Propo lirectly overlyi				ns Yes	No	<u>X</u>	
(a) If Yes, pro	ovide Mine	Info: Name	<b>):</b>				
· / · · · · / F · ·		Depth	-			-	
		Seam				-	
		Owne	-				
							Office of Oil and

810S 8 NAL

WV Department of Protection

WW-6B	
(04/15)	

API NO. 47- <u>33</u> -	05	581	7	DD
<b>OPERATOR WELL</b>	NO.	KST5 D	HS	
Well Pad Name:	KST5	·		

### 18)

### **CASING AND TUBING PROGRAM**

TYPE	Size (in)	New or Used	Grade	Weight per ft. (lb/ft)	FOOTAGE: For Drilling (ft)	INTERVALS: Left in Well (ft)	CEMENT: Fill-up (Cu. Ft.)/CTS
Conductor	20"	New	J-55	94	114' "Conductor Aiready Set"	114'	CTS w/675 sks Class A
Fresh Water	13 3/8"	NEW	J-55	54.5	981* "Surface Casing Already Set"	981'	CTS w/700 sks Class A
Coal							
Intermediate	9 5/8"	NEW	J-55	36	2484' "Incommediate Casing Already Co	2484'	CTS w/780 sks Class A
Production	5 1/2"	NEW	P-110	20	19024'	19024'	20% excess, lead yield = 1.19, tall yield
Tubing							
Liners							

ТҮРЕ	Size (in)	Wellbore Diameter (in)	<u>Wall</u> <u>Thickness</u> <u>(in)</u>	Burst Pressure (psi)	Anticipated  Max. Internal  Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	20"	24"	.438	2110		Class A	Yield = 1.22, CTS
Fresh Water	13 3/8"	17 1/2"	.380	2730	1200	Class A	yield = 1.21, CTS
Coal							
Intermediate	9 5/8"	12 1/4"	.352	3520		Class A	Yield = 1.41, CTS
Production	5 1/2"	8 1/2"	.361	12640	10000	Class A	20% excess yield = 1.19, tail yield 1.94.0
Tubing							
Liners							

### **PACKERS**

Kind:	None	TIMED, Gas
Sizes:	None	Office of Oil and Oil 8
Depths Set:	None	JAN JAN OF THE STATE OF THE STA
		Environmenta

#### Adkins, Laura L

From:

Ward, Samuel D

Diane White

Sent:

Tuesday, February 13, 2018 12:26 PM

To:

Adkins, Laura L

Cc: Subject:

Re: KST 5 revisions

If it is only changes in the lateral and not surface through intermediate, I have no need to see it.

Sent from my iPhone

On Feb 13, 2018, at 12:23 PM, Adkins, Laura L < Laura.L.Adkins@wv.gov > wrote:

Diane,

Going through the revised documents on the KST 5 pad, I don't see Sam's approvals on the revised casing and so far it just looks like the production casing is all that changed on these. If Sam is okay with changing the production and TD depths without seeing them he can send me an email in response to this. If he wants to see them...Sam, let us know and we can send a copy to you for your approval.

Thanks,

Laura

#### Laura L. Adkins

Environmental Resource Specialist III Permit Review WVDEP Office of Oil and Gas 601 57th Street, SE Charleston, WV 25304 304-926-0499 ext. 1495

API NO. 47-33-	0	581	2	<u>D</u>	$\underline{\mathcal{D}}$
OPERATOR WELL N				_	
Well Pad Name: k	ST5				

19	) Describe j	proposed	well	work,	including	the the	drilling	and	plug	ging	back	of any	pilot	hole:
						,		<b>5</b> <del></del>	F				P	

Drill the vertical depth to the Marcellus at an estimated total vertical depth of approximately 6900 feet. Drill horizontal leg - stimulate and be capable of producing from the Marcellus Formation. Should we encounter an unanticipated void in the coal, we will install a minimum of 20' of casing below the void but not more than 100' below the void, set a basket and grout to surface.

20) Describe fracturing/stimulating methods in detail, including anticipated max pressure and max rate:

The stimulation will be multiple stages divided over the lateral length of the well. Stage spacing is dependent upon engineering design. Slickwater fracturing technique will be utilized on each stage using sand, water, and chemicals. See attached list. Maximum pressure not to exceed 10,000 psi.

- 21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 16.3 acres(this is a built pad, no further disturbance anticipated)
- 22) Area to be disturbed for well pad only, less access road (acres): 11.5 acres (this is a built pad, no further disturbance anticipated)
- 23) Describe centralizer placement for each casing string:

Conductor - NA
Freshwater - Bow spring on 1st Jt. Then every 4th Jt. To 100 ft. from surface

ntermediate - 1 Bow spring on each of the 1st two Jib. than every 4m jutal misce surrice casing hoduction - Run 1 spiral contraktor every 5 joints from the top of the curve to surface. Run 1 spiral contraktor every 3 joints from the 1st 5.5" long joint to the top of the curve

24) Describe all cement additives associated with each cement type:

Conductor - "Conductor already ser" - CTS wi 675 sks Class A, 15 6ppg, 1-22 cu-f/sk, 820 cu-fl
Fresh Water - "Suchion Casing already ser" - CTS wi 700 sks Class A, 15 6ppg, 1-22 cu-f/sk, 847 cu-fl
Intermediate - "Intermediate Casing already ser" - CTS wi 700 sks Class A, 15 cnc 1,41 cu-f/sk, 1099 cu-fl

Later instance - 1.25 (1.45 ppg POZ-PNET + 0.23 k) whore R3 = 15k) whore R3 = 15k) whore E01 = 0.75 (2.4k) PP31. = 0.33 k) whore R3 = 0.75 (2.4k) k) PP31. = 50% (2.4k) PP31. = 50% (2.4

25) Proposed borehole conditioning procedures:

Conductor -

Intermediate Production - Once on bottom/TD with casing, directable at max ablevable pump race for at least 2x bottoms up, or undi returns and pump pressures indicate the hole is clean. Circulate a minimum of one hole volume prior to pumping on

Office of Oil and Gas

JAN 8 2018

WV Department of Environmental Protection

\*Note: Attach additional sheets as needed.

4703300898 4703831843 KST5 PAD 47d33006G7 470337375 Proposed Unit Boundary 14703301377 4703300624 703300163 4703300491 703303089 Proposed Wellbores 4703300 198 4703302054 403300175 470333193 4703300574 4703300177 14703373745 4703370343 p3300172 4703373743 4704100291 04170228 47041002 4704170666 14704102856 1,320 NOTE: See Attached Spreadsheet for Well Data SCALE: 1" = 1,320' Area of Review for:

#### KST5 PAD

KST5 AHS Wellbore (47-033-05814) KST5 BHS Wellbore (47-033-05815) KST5 CHS Wellbore (47-033-05816) KST5 DHS Wellbore (47-033-05817) KST5 EHS Wellbore (47-033-05818) KST5 FHS Wellbore (47-033-05819)

DATA SOURCE WVGES Data Set - 2017

11/1/2017

Union District, Harrison County, W.Va.



				EXISTING WELLS LOCATED WITHIN THE AREA OF REVIEW FOR	AREA OF REVIEW FOR:					
			KST5 PAD A	AND PROPOSED WELLS AHS, BHS, CHS,	DHS,	EHS & FHS	50			
6	API	COUNTY	FARM	OPERATOR NAME	FORMATION NAME	WELL TYPE	DVT	STATUS	LATITUDE	LONGITUDE
1	4703300137	Harrison	15 Law 2	Domínion Energy Transmission Inc.	Speechley	Gas	3,015	ACTIVE	39.161098	-80.473614
2	4703300140	Harrison	G Minter	Dominion Energy Transmission Inc.	Speechley	Gas	3,056	PLUGGED	39,157614	-80.469515
3	4703300163	Harrison	J S Law 1	Domínion Energy Transmission Inc.	Greenland Gap Fm	Gas	2,878	PLUGGED	39.163420	-80.466534
4	4703300172	Harrison	A W Rhodes	Dominion Energy Transmission Inc.	Hampshire Grp	Storage	1,575	ACTIVE	39.141090	-80.459637
S	4703300173	Harrison	A W Rhodes	Dominion Energy Transmission Inc.	NA	NA	NA	ACTIVE	39.141665	-80.460845
9	4703300175	Harrison	G Minter	Dominion Energy Transmission Inc.	Gantz	Storage	1,720	ACTIVE	39.147180	-80.462245
1	4703300177	Harrison	A W Rhodes	Dominion Energy Transmission Inc.	Gantz	Storage	1,800	ACTIVE	39.145858	-80.457289
89	4703300198	Harrison	W J Law 1	Dominion Energy Transmission Inc.	Thirty-foot	Storage	2,005	ACTIVE	39.150793	-80,459825
6	4703300201	Harrison	G Minter	Dominion Energy Transmission Inc.	Thirty-foat	Storage	2,344	PLUGGED	39.152535	-80.470633
10	4703300202	Harrison	G Minter	Dominion Energy Transmission Inc.	Gordon (undiff)	Storage	2,042	PLUGGED	39.151624	-80,466475
11	4703300427	Harrison	Guinn Minter	Dominion Energy Transmission inc.	Benson	Gas	4,520	ACTIVE	39.157400	-80.465748
12	4703300491	Harrison	MGLaw	Dominion Energy Transmission Inc.	Benson	Gas	4,261	ACTIVE	39.162549	-80.459266
13	4703300517	Harrison	J S Law	Dominion Energy Transmission Inc.	Benson	Gas	4,400	ACTIVE	39.155873	-80.456916
14	4703300520	Harrison	MJ Loughmiller	Dominion Energy Transmission Inc.	Benson	Gas	4,548	ACTIVE	39.152099	-80.474732
15	4703300544	Harrison	Dan Lee Stickel	Dominion Energy Transmission Inc.	Benson	Gas	4,300	ACTIVE	39.144240	-80.455990
16	4703300574	Harrison	Lee Roy & Marjorie Neeley	Dominion Energy Transmission Inc.	Benson	Gas	4,370	ACTIVE	39.146874	-80,466161
17	4703300607	Harrison	J H/R C McDonald	Domínion Energy Transmission Inc.	Greenland Gap Fm	Gas	4,769	ACTIVE	39.171589	-80.474729
18	4703300624	Harrison	Rosemary Allman	Dominion Energy Transmission Inc.	Greenland Gap Fm	Gas	4,515	ACTIVE	39.163710	-80,470633
19	4703300898	Harrison	J H McDonald 1	Jackson Fuel Corporation	Big Injun (Grubr)	- Gas	1,705	- ACTIVE	39.171849	-80.473987
20	4703301377	Harrison	J Thrash	Dominion Energy Transmission Inc.	Fifth	Gas	2,215	ACTIVE	39.166468	-80,469887
21	4703301417	Harrison	Paul McDonald	Dominion Energy Transmission Inc.	Alexander	Gas	4,782	ACTIVE	39,165887	-80.462806
22	4703302054	Harrison	WJLaw	Domínion Energy Transmission Inc.	Alexander	Gas	4,800	ACTIVE	39.150213	-80.458893
23	4703302055	Harrison	Lee Roy & Marjorle Neeley	Dominion Energy Transmission Inc.	Benson	Gas	4,536	ACTIVE	39.152534	-80.467838
24	4703302949	Harrison	Consolidated Gas Supply	Dominion Energy Transmission Inc.	Greenland Gap Fm	Gas	4,998	ACTIVE	39.169237	-80,468769
25	4703303068	Harrison	Frank McDonald	Dominion Energy Transmission Inc.	Benson	Gas	4,606	ACTIVE	39.164000	-80.475851
26	4703303089	Harrison	David Allman	Dominion Energy Transmission Inc.	Alexander	Gas	4,903	ACTIVE	39.154411	-80,462478
27	4703305336	Harrison	James I McDonald	CNX Gas Company	NA	NA	NA	NOT DRILLED	39.171172	-80,466421
28	4703331380	Harrison	M G Law	Hope Natural Gas Company	Hampshire Grp	Gas	2,253	UNKNOWN	39.158776	-80,462520
53	4703331843	Harrison	WTLaw	Consolidated Gas Supply Corp.	NA	NA	NA	UNKNOWN	39.171269	-80.463552
30	4703331935	Harrison	W R Neely	Consolidated Gas Supply Corp.	NA	NA	NA	UNKNOWN	39.146730	-80.467838
31	4703370343	Harrison	Arthur Rhodes 2	Hope Natural Gas Company	NA	NA	NA	UNKNOWN	39.141795	-80.458407
32	4703373743	Harrison	R A Beeghley	Hope Natural Gas Company	NA	NA	NA	UNKNOWN	39,139328	-80.453002
33	4703373745	Harrison	Arthur Rhodes	unknown	NA	NA	NA	UNKNOWN	39.143391	-80.450953
34	4703373746	Harrison	W V Brannon	unknown	NA	NA	NA	UNKNOWN	39.144262	-80.452444
35	4703373747	Harrison	Arthur Rhodes	unknown	NA	NA	NA	UNKNOWN	39.144117	80,453935
36	Ancorocons	Unanisan		the same of the sa	414	A14	818	. in the second second	00000000	the second name of the second

37	4703373755	Harrison	R C McDonald	unknown	NA	ΨN	NA	UNKNOWN	39.157759	-80.476224
38	4703373756	Harrison	R C McDonald	nnknown	NA .	VN.	NA	UNKNOWN	39.168511	-80.476409
39	4703373757	Harrison	R C McDonald	unknown	NA	NA	NA	UNKNOWN	39.172430	-80.473055
\$	4704100225	Lewis	W E Beeghley	Coolumbia Natural Resources	Gantz	Gas	1,714	ABANDONED	39.140365	-80.461872
41	4704100290	Lewis	W E Beeghley	Hope Natural Gas Company	NA	NA	NA	PLUGGED	39.138624	-80.465969
45	4704100291	Lewis	Wm Beeghley	Reserve Exploration Co.	NA	NA	NA	PLUGGED	39.139204	-80.466341
43	4704100292	Lewis	George W Neely	Hope Natural Gas Company	Gordon	Storage	2,040	PLUGGED	39.138334	-80.466713
4	4704102645	Lewis	W M Beeghley	Consolidated Gas Supply Corp.	NA	Storage	NA	ACTIVE	39.141670	-80.467831
45	4704102856	Lewis	Sarah E Hinzman	Dominion Energy Transmission Inc.	Greenland Gap Fm	Storage	2,828	ACTIVE	39.138335	-80.459452
46	4704104116	Lewis	James W Miller	Dominion Energy Transmission Inc.	Greenland Gap Fm	Gas	4,493	ACTIVE	39.141815	-80.464852
47	4704170226	Lewis	J M Beeghley	Reserve Exploration Co.	NA	NA	NA	UNKNOWN	39.138769	-80.466900
48	4704170666	Lewis	W H Bond	nnknown	NA	NA	NA	UNKNOWN	39.138602	-80.453190

SOURCE: WVGES DATASET (2017) and WVDEP WEBSITE

#### KST5 Well Pad Cement Additives

Material Name	Material Type	Material Description Premium NE-1 is a	CAS #	Tax .	1
		portland cement with	Ingredient name Portland cement	%	CAS number
		early compressive	Calcium oxide	90 - 100	65997-15-1 1305-78-8
		strength properties.	Magnesium oxide	1-5	1309-48-4
remium NE-1	Portland Cement		Crystalline silica: Quartz (SiO2)	0.1 - 1	14808-60-7
		Commonly called gel, it is		-	
		a clay material used as a	Ingredient name	%	CAS number
		cement extender and to	bentonite Crystalline silica; Quartz (SiO2)	90 - 100 5 - 10	1302-78-9 14808-60-7
		control excessive free water.			
itonite	Extender				
		A powdered, flaked or			
		pelletized material used	Ingredient name	%	CAS number
		to decrease thickening	Calcium chloride	90 - 100	10043-52-4
		time and increase the rate of strength development			
ium Chloride	Accelerator	or strength development			
		Gooded (2/2 to 2/4 inch)	Entertain and the second	T.	12220000000
		Graded (3/8 to 3/4 inch) cellophane flakes used as	Ingredient name No hazardous ingredient	%	CAS number
		a lost circulation material.	NO Nezardous ingredient		
o Flake	Lost Circulation				
		FP-13L is a clear liquid			
		organic phosphate			
		antifoaming agent used in cementing operations. It	Ingredient name	%	CAS number
		is very effective	Tributyl phosphate	90 - 100	126-73-8
		minimizing air			
		entrapment and			
		preventing foaming tendencies of latex			
		systems.			
13L	Foam Preventer				
			Ingredient name	%	CAS number
1.6.2	n	Used to retard cement	Sucrose	90 - 100	57-50-1
nulated Sugar	Retarder	returns at surface. A proprietary product			
		that provides expansive			
		properties and Improves			
		bonding at low to	Ingredient name	%	CAS number
		moderate temperatures.	Calcium magnesium oxide	90 - 100	37247-91-9
1		serriperson leds			
		Multi-purpose polymer			
		additive used to control free fluid, fluid loss,	Ingredient name	%	CAS number
		rheology, and gas	No hazardous ingredient		
A-170	Gas Migration	migration.			
		A			
		A synthetic pozzolan, (primarily Silicon Dioxide).			
		When blended with			
		cement, Pozzolan can be	Ingredient name	%	CAS number
		used to create lightweight cement	Crystalline silica: Quartz (SiO2)  RECENT and	5-10	14808-60-7 1305-78-8
		slurries used as either a	Calcium oxide Office of O"	1-5	1305-78-8
		filler slurry or a sulfate	Ingredient name Crystalline silica: Quartz (SiO2) Calcium oxide  Office of Oil and OCT 0.1	Sau	
		resistant completion cement.	OCT VI	+ of	
(Fly Ash)	Base	220-2011	nanart	Protection	
		A laure and a second	Wy Donnenta	11.	
		A low temperature retarder used in a wide	EU/IIO	%	GAS number
		range of slurry	Ingredient name Organic acid salt	40 - 50	Trade secret.
		formulations to extend			7,000
	Patades	the slurry thickening time.			
	Retarder				
			Ingredient name	%	CAS number
			2-Butoxyethanol	20 - 30 10 - 20	111-76-2 Trade secret.
			Proprietary surfactant D-Glucopyranose, oligomeric, C10-16-alkyl glycosides	5 - 10	110615-47-9
		Used to water wat and a	D-Glucopyranose, oligomeric, C10-16-alkyl glycosides	0 - 10	
		Used to water wet casing and formation to facilitate	Alkviarvisulfonate amine salt	1 - 5 0.1 - 1	Trade secret.

## List of Frac Additives by Chemical Name and CAS #

#### KST5 Well Pad (ASH,BHS,CHS,DHS,EHS,FHS)

Chemical Name	CAS#	Multiple CAS #'s
Chemical Name	CAS #	Wattiple CAS#3
Pro Shale Slik 405	Mixture	68551-12-2
		7647-14-5
		12125-02-9
		64742-47-8
Pro Hib II	Mixture	68412-54-4
		68607-28-3
		107-21-1
		111-76-2
		67-56-1
		107-19-7
Silica Sand and Ground Sand	Mixture	14808-60-7
		1344-28-1
		1309-37-1
		13463-67-7
Hydrochloric Acid 22 DEG BE	7647-01-0	
PROGEL - 4.5	64742-96-7	
BIO CLEAR 2000	Mixture	25322-68-3
		10222-01-2
SCALE CLEAR SI 112	107-21-1	
PROBREAK 4	Mixture	57-50-1
		107-21-1
Sulfamic Acid	5329-14-6	
PRO - Flow - 102-N	Mixture	67-63-0
		68439-45-2
		2687-96-9
PROGEL - 4	9000-30-0	

RECEIVED Office of Oil and Gas

OCT 0 1 2017

WV Department of Environmental Protection

33-0581700

				COMMENTS		Conductor casing = 0.438*	Burst=2110 psi		Surface casing = 0.360" wall thickness Burst=2730 psi		and the second s	Intermediate casing = 0.352** wall thickness	Burst=3520 psi			Professional and			schedules may be changed due to hole conditions					×	TD @ +/-6900' TVD +/-19024' MD	X=centralizers
KST5D Marcellus Shale Horizontal Harrison County, WV	245719.6N 1724071.6E	245277.8N 1725089.5E	234548.9N 1728680.9E	CONDITIONING										Once on bottom/TD with casing, circulate at max allowable pump rate for at least 2x bottoms up, or until returns and pump pressures indicate the hole is clean. Circulate a minimum of one hole votume prior to pumping cement.				×	+1-1131	X=centralizers						
KS Marcellus Sh Harrison (				CENTRALIZERS		ş			Bow spring on 1st Jt. Then every 4th Jt. To 100 ft. from surface		1 Bow spring on each	of the 1st two Jts. then every 4th it.till inside	surface casing		Run 1 spiral centralizer every 5 joints from the top of the curve to surface.				Run 1 spiral centralizer every 3 joints from the	1st 5.5" long joint to the top of the curve.				*		×
				CEMENT		CTS w/ 675 sks Class A, 15.6pg,	1.22 cu-fVsk, 820 cu-ft		OTS w/ 700 sks Class A, 15.61ppg, 1,21 cu-f/sk, 847 cu-ft			CTS w/ 780 sks Class A, 15ppg, 1.41 cu-ft/sk, 1099 cu-ft				bwoc R3 + 1% bwoc EC1 + 0.75 galvsk FP13L + 0.3% bwoc MPA170	Tail: 14 8 ppg PNE-1 + 0.35% bwoc R3 + 0.75 gal/sk FP13L + 50% bwoc	_	on.							X
	KST5D SHL	KST5D LP	KST5D BHL	MUD											9.0ppg SOBM			11.5ppg- 12.5ppg SOBM				11.5ppg-	ndda.	×		X
	KS	KS	KS	BASE		3	e :	135	981	1474 / 1575 / 1672	1914 / 1985 / 2104	2162 / 2239 / 2391	2434	2484			4410			6796	6935		/ 2969		8.5" Hole - Cemented Long String 5-1/2" 20# P-110 HG CDG HTQ	
				TOP			•	O	0 80, 390, 1060, 1440	1459 / 1500 / 1575	1852 / 1976 / 2054	2119 / 2162 / 2361	2416	0			4376	5274	6644	6688	6853	19024	6935 / 6967	X	8.5" Hole - Gem 5-112" 20# P-1	X
		1156'	161.493°	GEOLOGY			*Conductor already set*	Fresh Water	Surface Casing 'Already Set' Coal(s)	Little Lime / Big Lime / Injun	-Santz* / 50 Foot / 30 Foot	Gordon Stray / Gordon / Fifth	Bayard	Intermediate Casing "Already Set"			Benson	Cashaqua	Geneseo	Tully Limestone	Marcellus	TMD / TVD	Onondaga / Huntersville Chert	X	5 K P (1800 180 H710 8.5" Hole 5-10" 2	
ENERGY		-	167	CASING		50.	94# J-55		13-3/8" 54.5# J-55 BTC			9-5/8" 36# J-55 BTC					5-1/2"	P-110 HC	срснта					×		×
				HOLE			47		17.5*			12.25*			8.5" Vertical			8.5" Curve				8.5" Lateral		Ot S	01.7FE	X CHI
		Ground Elevation (RKB)	Azm	WELLBORE DIAGRAM	************		>	<u> </u>	×	×			×		×	***********	×	A.v.			anan.	(532)	Ж	En	WV T	Her CE X
		Ground El	1	WELLBO		**********	TARREST CO.		×	×		2000) 2000)			*		· ×			*******		ANTANT	×	C. Trans		

API Number 47 -	33 -	05817	DD
Operators	Wall No v		

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

#### FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

Operator Name HG Energy II Appalachia, LLC OP Code 494519932	
Watershed (HUC 10) Middle West Fork Creek Quadrangle West Milford WV 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: Closed loop - no utilization of a pit	
Will a synthetic liner be used in the pit? Yes No ✓ If so, what ml.?	
Proposed Disposal Method For Treated Pit Wastes:	SDW 9/20/2017
Land Application	9/20/20
Underground Injection ( UIC Permit Number See Attached Sheet	
Reuse (at API Number_At next anticipated well  Off Site Disposal (Supply form WW-9 for disposal location)  Other (Explain_	
Will closed loop system be used? If so, describe: Yes	
Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc.	mud though intermediate string then SOBM
-If oil based, what type? Synthetic, petroleum, etc. Synthetic	
Additives to be used in drilling medium? Water, soap, KCI, barite	
Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Approved landfill	
-If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust) NA	
-Landfill or offsite name/permit number? Please see attached sheet	
Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permitt where it was properly disposed.	
I certify that I understand and agree to the terms and conditions of the GENERAL WATER POL on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protect provisions of the permit are enforceable by law. Violations of any term or condition of the general permitaw or regulation can lead to enforcement action.  I certify under penalty of law that I have personally examined and am familiar with the infor application form and all attachments thereto and that, based on my inquiry of those individuals important of the information, I believe that the information is true, accurate, and complete. I am aware penalties for submitting false information, including the possibility of fine or imprisonment.	tion. I understand that the nit and/or other applicable mation submitted on this mediately responsible for
Company Official Signature Diane White	RECEIVED Office of Oil and Gas
Company Official (Typed Name) Diane White	
Company Official Title Accountant	OCT 0 1 2017
20.47	WV Department of Environmental Protection
Subscribed and sworn before me this 19th day of September , 20 17	
My commission expires 7 31 2022	OFFICIAL SEAL STATE OF WEST VIRGINIA NOTARY PUBLIC CASSIDY A. BOARDMAN
	5301 13th Ave Vienna, WV 26105 My Commission Expires July 31, 2022

		Operator's W	vell No. KST5 DHS
HG Energy II Appala	achia, LLC		
Proposed Revegetation Treatr	ment: Acres Disturbed	16.3 (pad built, no further disturbance anticipated) Prevegetation ph	6.0
Lime 3	Tons/acre or to corre	ect to pH 6.5	
Fertilizer type 10-2	20-20 or equal		
Fertilizer amount	500	lbs/acre	
Mulch_ Hay or Str	raw @ 2	Tons/acre	
		Seed Mixtures	
	mporary	Perma	
Seed Type	lbs/acre	Seed Type	lbs/acre
Tall Fescue	40	Tall Fescue	40
Ladino Clover	5	Ladino Clover	5
Maps(s) of road, location, pit provided). If water from the p acreage, of the land application	oit will be land applied, in on area.	nd application (unless engineered plans included imensions (L x W x D) of the pit, and	
Maps(s) of road, location, pit provided). If water from the p acreage, of the land application	oit will be land applied, in on area.	clude dimensions (L x W x D) of the pit, and	
Maps(s) of road, location, pit provided). If water from the p acreage, of the land application. Photocopied section of involve	oit will be land applied, ir on area. yed 7.5' topographic shee	nclude dimensions (L x W x D) of the pit, and	
provided). If water from the p acreage, of the land application. Photocopied section of involve Plan Approved by:	oit will be land applied, in on area.  yed 7.5' topographic sheet  A DWoo	nclude dimensions (L x W x D) of the pit, and	I dimensions (L x W), and a
Maps(s) of road, location, pit provided). If water from the p acreage, of the land application Photocopied section of involve Plan Approved by:	oit will be land applied, in on area.  yed 7.5' topographic sheet  A DWoo	t.	I dimensions (L x W), and a
Maps(s) of road, location, pit provided). If water from the p acreage, of the land application Photocopied section of involve Plan Approved by:	oit will be land applied, in on area.  yed 7.5' topographic sheet  A DWoo	t.	I dimensions (L x W), and a
Maps(s) of road, location, pit provided). If water from the p acreage, of the land application Photocopied section of involve Plan Approved by:	oit will be land applied, in on area.  yed 7.5' topographic sheet  A DWoo	t.	I dimensions (L x W), and a
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Maps(s) of road, location, pit provided). If water from the p acreage, of the land application. Photocopied section of involve Plan Approved by:	oit will be land applied, in on area.  yed 7.5' topographic sheet  A DWoo	t.	I dimensions (L x W), and a

Date: 9.12012017

) No

OCT 0 1 2017

— WV Department of Environmental Protection

33-05817 DD 1300 39.170718 80.473006 KST5 PAD-SLS 19/18 1006 Road Entrance /39.166513 80.472300 MINES STRIP

WELL SITE SAFETY PLAN FOR:

## KST5 PAD

Union District, Harrison County, W.Va.

TOPOGRAPHIC MAP West Milford 7.5' Quadrangle RECEIVED Gas

OCT 0 1 2017

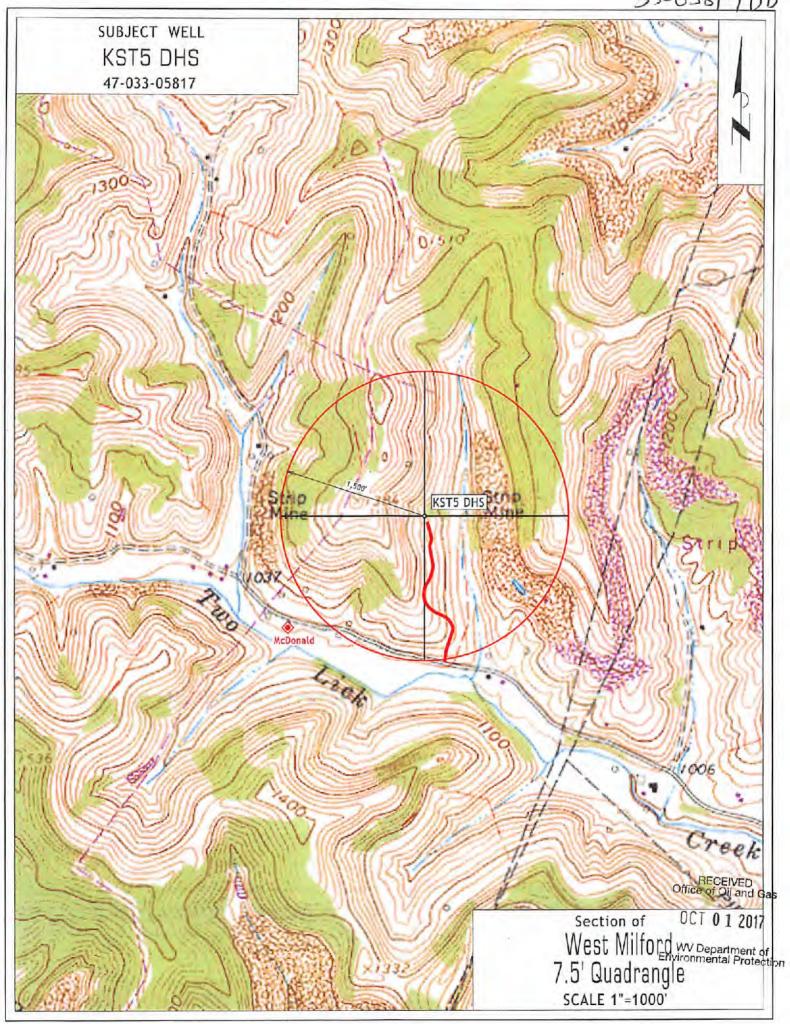
WV Department of Environmental Protection





8/10/2017

33-0581700



## HG Energy II Appalachia, LLC

## Site Safety Plan

KST 5 Well Pad
2 Lick Run Road
Harrison County, WV

August 2017: Version 1

5000 9/20/2017

For Submission to
West Virginia Department of Environmental Protection,
Office of Oil and Gas

HG Energy II Appalachia, LLC

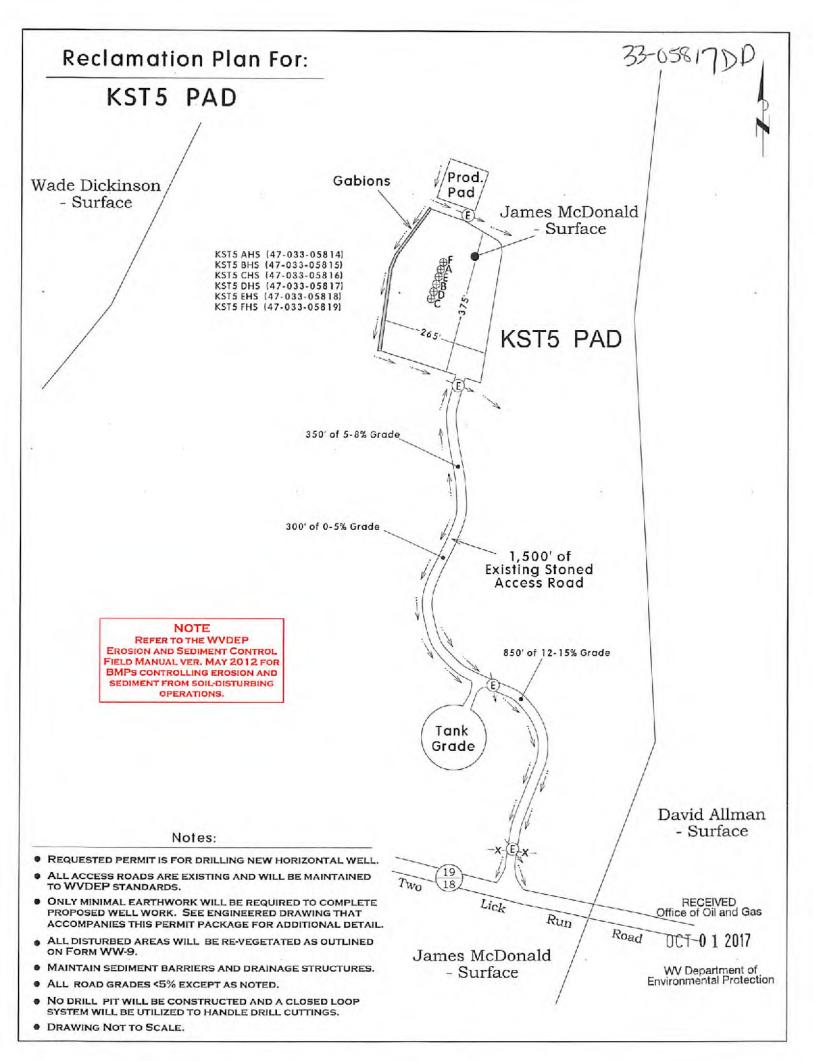
5260 Dupont Road

Parkersburg, WV 26101

RECEIVED Office of Oil and Gas

OCT 0 1 2017

WV Department of Environmental Protection



BHL is located on topo map 9,676 feet south of Latitude: 39 10 00 SHL is located on topo map 13,732 feet south of Latitude: 39 12 30 \_feet south of Latitude: 39'12 PARCEL
A R. C. & M. B. MCDONALD
A M. & LYDIA D. MCDONA
B J. M. & EMMA THRASH—WI
M. L. & MYRTLE NUTTER
C J. M. & EMMA THRASH—WI
M. L. & MYRTLE NUTTER
D JAMES S. & SUSANNA LAW
E M. G. & I. L. LAW
W. J. & LUCY A. LAW
F GUINN & JANE MINTER
G GUINN & JANE MINTER GETAKE 33-00944 公田 There are no water wells or developed springs within 260 of proposed well.
There are no existing buildings within 625 of proposed well.
Proposed well is greater than 100 from perennist DOMINION TRANSMISSION -TM/PAR 20-423/10 10° 10° locat UNNAMED TRIBUTARY -01419 STAKE streem, wetland, pond, reservoir or lak There are no native trout streams within 300' of ted APPROXIMATE KICK OFF, POINT Proposed well.

Proposed well is greater than 1000' from surface/groundwater Intake or public water supply. It is not the purpose or intention of this plat to 33-04705 33-008870 99 ●33-01575 that not be duplosed incastions of the surface or mineral percela deploted hereon. The location of the boundary lines, as shown, are based on record deed descriptions, field evidence found endlor tax map topo 33-00726 KST5DHS JAMES IVAN MCDONALD TM/PAR 20-423/8 map position, unless otherwise noted. 1 83-0137 SURFACE HOLE LOCATION (SHL) | KICK OFF POINT LOCATION (KOP) CO ROUTE 19/18 MED TRIBUTARY LICK CREEK 4,172 UTM 17-NAD83 N:4335844.35 E:545519.97 UTM 17-NADB3 N:4335840.19 E:545548.32 ● 33-01417 TWO LICK CREEK 33-00730 NAD27. W NORTH N:245704.37 E:1724164.38 LAT/LON DATUM-NAD83 LAT:39.170594 NAD27, WV NORTH N:245719.58 33-03068 33-0016 E:1724071.60 LAT/LON DATUM-NAD83 LAT:39.170632 DAVID BRYAN ALLMAN 33-00137 IM/PAR 20-423/9 BRADLEY S. & TERMIN STUTTLER; JOELLEN F. ALLMAN (LE) IM/PAR 20-424/33 west LON:-80,473049 LON:-80.472721 33-01609 SHARÓN S. MCDONALD TM/PAR 20-424/47 99 UTM 17-NAD83 N:4332464.58 E:546980.88 500 UTM 17-NADB3 N:4335714.92 Longitude: Longitude: BRADLEY S. & TERRI L. STUTLER DM/PAR 20-444/2 NaD27, W NORTH N:245277.79 NAD27, W NORTH N:234548.94 33-004270 LEGEND E:1725089.52 E:1728680.89 MARJORIE NEELY LAT/LON\_DATUM=NAD83 LAT:39.140101 LON:-80.456372 LAT/LON DATUM-NADB3 LAT:39.169450 TM/PAR 20-444/1 0 - TOPO MAP POINT 1 - WHI 33-03089 BRADLEY S. & TERRI L. STUTLER TM/PAR 20-444/3 80 - ALL ARE POINTS UNLESS OTHERWISE NOTED. 33-02055 201 33-00202 27 25 MINERAL TRACT 33-00201 BOUNDARY 300 - LESSORS CO ROUTE 35/ N 42'08'12" E N 18'44'56" W N 06'58'25" W N 16'06'12" E - PARCEL LINES @ 33-02054 - LEASE BOUNDARY JENNIFER K. NEELY TM/PAR 20,444/18 - WELL REFERENCE 33-00574 - ROAD WELL KST5DHS - STREAM CENTER LINE @33-00177 WELLS WITHIN 2400' (E) - EXISTING WELLS @33-00544 - PLUGGED WELLS IGNCHELDE RUN RO PM/PAR 20-444/19 41-02645 EFERENCE DETAIL

CENSED

COROSE DISTANTINION

CENSED

COROSE DISTANTINION

COROSE DISTANTINIO 41-04116 33-00173 Blue Mountain Inc. #41-00491 41-00492# #41-00490 1023 MASON DIXON HIGHW BURTON, WV 26562 PHONE: (304) 662-5486 GEORGE D SIL I,THE UNDERSIGNED, HEREBY CERTIFY THAT THIS KST5DHS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY DRAWING #: KST5DHS LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY 1" = 2000 THE DEPARTMENT OF ENVIRONMENTAL PROTECTION. STATE OF VIRGINIO SONAL SURGINA MINIMUM DEGREE Signed: OF ACCURACY: 1/2500 PROVEN SOURCE U.S.G.S. MONUMENT THOMAS 1498.81' R.P.E.: L.L.S.: P.S. No. 2000 PLACE SEAL HERE (+) DENOTES LOCATION OF WELL ON WEST DATE: JANUARY 03, 2018 UNITED STATES TOPOGRAPHIC MAPS WVDEP OPERATOR'S WELL#: KST5DHS OFFICE OF OIL & GAS 601 57TH STREET API WELL #: 058170 33 CHARLESTON, WV 25304 STATE COUNTY PERMIT Well Type: Oil Waste Disposal Deep X Production X Gas Liquid Injection Storage X Shallow MIDDLE WEST FORK CREEK WATERSHED: ELEVATION: \_ HARRISON / UNION WEST MILFORD, WV 7.5' COUNTY/DISTRICT: QUADRANGLE: JAMES IVAN MCDONALD ACREAGE: 176.000± SURFACE OWNER: OIL & GAS ROYALTY OWNER; R. C. MCDONALD & M. B. MCDONALD; A. M. MCDONALD & LYDIA D. MCDONALD ACREAGE: 1328.95± DRILL X CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE X PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG & ABANDON CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY): MARCELLUS TMD: 19,024'± TARGET FORMATION: ESTIMATED DEPTH: TVD: 6,900'± HG ENERGY II APPALACHIA, LLC WELL OPERATOR DESIGNATED AGENT DIANE C. WHITE 5260 DUPONT ROAD 5260 DUPONT ROAD Address Address PARKERSBURG Zip Code 26101 PARKERSBURG State W State Zip Code 26101

WW-6A1	l
(3/13)	

Operator's	Well No.	
operator s	W CII INO.	

#### INFORMATION SUPPLIED UNDER WEST VIRGINIA CODE Chapter 22, Article 6A, Section 5(a)(5) IN LIEU OF FILING LEASE(S) AND OTHER CONTINUING CONTRACT(S)

Under the oath required to make the verification on page 1 of this Notice and Application, I depose and say that I am the person who signed the Notice and Application for the Applicant, and that –

- (1) the tract of land is the same tract described in this Application, partly or wholly depicted in the accompanying plat, and described in the Construction and Reclamation Plan;
- (2) the parties and recordation data (if recorded) for lease(s) or other continuing contract(s) by which the Applicant claims the right to extract, produce or market the oil or gas are as follows:

Lease Name or				
Number	Grantor, Lessor, etc.	Grantee, Lessee, etc.	Royalty	Book/Page

\*\*See Attached Sheets\*\*

RECEIVED
Office of Oil and Gas

OCT 0 1 2017

WV Department of Environmental Protection

#### Acknowledgement of Possible Permitting/Approval In Addition to the Office of Oil and Gas

The permit applicant for the proposed well work addressed in this application hereby acknowledges the possibility of the need for permits and/or approvals from local, state, or federal entities in addition to the DEP, Office of Oil and Gas, including but not limited to the following:

- WV Division of Water and Waste Management
- WV Division of Natural Resources WV Division of Highways
- U.S. Army Corps of Engineers
- U.S. Fish and Wildlife Service
- County Floodplain Coordinator

The applicant further acknowledges that any Office of Oil and Gas permit in no way overrides, replaces, or nullifies the need for other permits/approvals that may be necessary and further affirms that all needed permits/approvals should be acquired from the appropriate authority before the affected activity is initiated.

Well Operator:	HG Energy II	Appalachia,	LLC	
By:	Diane White	Diane	White	
Its:	Agent			

HG Energy II Appalachia, LLC KSTS DHS

17-24-042-040-040   17-24-040-040-040   17-24-042-040-040   17-24-040-040-040   17-2	17.0 640-000	LEGACY LEASE NUMBER	TAX MAP	LEASE NUMBER	GRANTOR/LESSOR	GRANTEE/LESSEE	ROYALTY	DEED BOOK	PAGE
17-26-61-0006-0000   CONCENTRATION   CONCENT	19-9-61-90-90-90				R C MCDONALD, M.B. MCDONALD; A.M. MCDONALD AND LYDIA		0/0 11012 0001 2001		'
17-26-643 -0000-0000   CONSCILLATION DATA INTERMEDICATION DATA INTERME	13-0-0-15 00000000000000000000000000000000					HOPE NATURAL GAS COMPANY	NOT LESS THAN 1/8	237	٠);
17.5 46.12-000 000 000 000 000 000 000 000 000 00	17.5 Act to the contents   17.5 Act to the con					CONSOLIDATED GAS SUPPLY CORPERATION	MERGER/NAME CHANGE	8	12
17-26-04-080-000   17-26-04-08	17-9-9-61-900-900					CONSOLIDATED GAS TRANSMISSION CORPERATION	ASSIGNMENT	1136	2
17.56-02.0007 0000	17.0 de 20 composition   Control Marches   Control March   C		17-20-0423-0008-0000,			CNG GAS TRANSMISSION CORPERATION	MERGER/NAME CHANGE	51	۶
17.00   17.0	17.5 6455 000000000000000000000000000000000	FK026553	17-20-0423-0007-0000			DOMINION TRANSMISSION, INC	MERGER/NAME CHANGE	28	۳
CONSCIENTING CONTROLLED   CONSCIENTING CONTROLLED   CON	17-20-0-13-000-0000    CONTINUENCE   CONTI					CNX GAS COMPANY, I.L.C.	FARMOUT AGREEMENT	1522	"
17.25 6424 6001	Translation		_			NOBLE ENERGY, INC	LIMITED PARTIAL ASSIGNMENT	1543	1235
17.30-6425-0010-0000   CONSCILLATION CONSC	13 to 14 to 15 t					NOBLE ENERGY, INC	ASSIGNMENT	1584	8
17.78 6425 0010 0000   CONSCILLATION OF CONSCILLATION O	17-2-2-61-600-000-000-000-000-000-000-000-000-				NOBLE ENERGY, INC.	חס בשבעפר וו ארדאנאכחוא, נבני	Postchingh	O CO	1
17.5 de 18.2 do 19.0   CONSCIDENTE CORRENTON   CONSCIDENTE DE STRANSSISSON CORRENTON   CONSCIDENTE DES STRANSSISSON CORRESPONDON   CONSCIDENT DES STRANSSISSON CORRESPONDON	17.8 de 19.000				Ē	VINAGE ACC. DAG LAGITAIN SOCIE	0/1 WALT 2001 TOW		
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17-20-044-0013-0001,   Collect GOLDONN LECTOR   COLUMN LECTO	17-20-610-6801-9001   CONCEGATIONNOW, LLC.   CONCEGATIONNOM, LLC.		0000-0100-5250-02-/1		CAN GAS INAMENISSION CONTENSION	CINX GAS COMPANY 11C	EARMOUT AGREEMENT	1532	֓֟֟֝֟֟֝֟
17-20-044-0409-0001,   17-20-044-0001-0001,	17.86444-6819-900,   CONTRICTORISED				DOMINION I HAMSHOW, INC.	NOBLE ENERGY INC	LIMITED PARTIAL ASSIGNMENT	1543	13%
17-20-044-0419-0001   CONSCIDENTION   CONSCIDENTIAL CONSCIDENTIAL CONSCIDENTION   CONSCIDENTIAL CONSCIDE	17.25 6444 6015 0000,   PRINCES LANGE AND THE PRINCES LANGE AND				CINY GAS COMPANY, LLC	NOBI F ENERGY INC	ASSIGNMENT	1584	1°
17-20-041-0483-0001   FEESENG GAL COLOMAN   FEESENG GAL COLOMAN   MESSENDAME CANAGE	17-20-044-0039-0000,   Intelligence   Control Contro				NOBLE FINERGY INC	HG ENERGY II APPALACHIA, ILC	ASSIGNMENT	92	
17-3-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-	17-20-044-0500-000    Foreign due compared				JONES C. DUL DAD CICANNA I DW	RESERVE GAS COMPANY	NOT LESS THAN 1/8	234	2
17-0-0-04-04513-001   CONCULDATED DES CAPACIDATES DES TRANSMISSOR, INC.   FERRENMENT CANNOE   FERRENMENT	17.35 ccts cont.		0000-2500-0620-06-21			HOPE NATURAL GAS COMPANY	MERGER/NAME CHANGE	SEC. OF STATE W	EBSITI
17-26-044-0033-0002   CONSCILUATED SAS EVENT PROFESSIONED   CONSCILUATED SAS EVENT PROFESSIONED SAS EVE	17.5664440013-0001,   17.5664440013-0001,		17-20-0424-0033-0001,		HOPE NATURAL GAS COMPANY	CONSOLIDATED GAS SUPPLY CORPERATION	MERGER/NAME CHANGE	903	
17-20-044-003-0004,   17-20-044-003-0004,	17-2-0-64-0015-000,   CONSCIOUNTED BOUNDAMENTOOR   CONSCIOUNTED BOUNDAME		17-20-0424-0033-0002,		CONSOLIDATED GAS SUPPLY CORPERATION	CONSOLIDATED GAS TRANSMISSION CORPERATION	ASSIGNMENT	1136	220
17-20-044-0039-004, CIGA GAS TRANSMISSION CORPERATION CONSCILLAND TRANSMISSION LINC CIX GAS COMPANY. LIC CIX GAS C	17-0-0-0-4-0-0-19-0-0-1-1-1-1-1-1-1-1-1-1-1-1-1-1-	7500.30%	17-20-0424-0033-0003,	0100433000	CONSOLIDATED GAS TRANSMISSION CORPERATION	CNG GAS TRANSMISSION CORPERATION	MERGER/NAME CHANGE	21	
17-20-042-0039-0006  CRK GAS CONMANY ILC   NOBLE ENERGY, INC   N	17-20-044-0550-000  CHOCALON TOTAL CONTRIBUTION   CHOCALON TOTAL	10070001	17-20-0424-0033-0004,		CNG GAS TRANSMISSION CORPERATION	DOMINION TRANSMISSION, INC	MERGER/NAME CHANGE	82	362
17-20-042-0033-0006,   CIK 64S COMPANY, LLC	17-30-04-04019-0000   CONCOLUMENT CONCOL		17-20-0424-0033-0005,		DOMINION TRANSMISSION, INC	CNX GAS COMPANY, LLC	HARMOUI AGREEMEN	7751	
17-20-044-0015-0001	17-20-044-003-000  CHROST-NINE CONTROLLED		17-20-0424-0033-0006,		CINX GAS COMPANY, ILC	NOBLE ENEBOY INC	ASSIGNMENT	1584	152
17-20-0443-0015-0000,   17-20-0444-0018-0000,   17-20-0444-0018-000,   17-20-0448-0018-000,   17-20-0448-0018-000,   17-20-0448-0018-000,   17-20-0448-0018-00	17-20-0444-0019-00001   CONTROLLED BLANK		17-20-0424-0033-000/			HG ENERGY II ADDALACHIA 11.C	ASSIGNMENT	E	E
17-20-044-0015-000,   19-0444-0015-000,   17-20-0444-0015-000,   1	17-20-0444-0001, 000000000000000000000000000000000					DESCENIE GAS COMPANY	NOT LESS THAN 1/8	22	1
17-20-0444-0019-0000,   17-20-0444-0019-0000,   17-20-0444-0019-0000,   17-20-0444-0019-0000,   17-20-0444-0019-0000,   17-20-0444-0019-0000,   17-20-0444-0019-0000,   17-20-0444-0019-0000,   17-20-0444-0019-0000,   17-20-0444-0019-0000,   17-20-0444-0019-0000,   17-20-0444-0019-0000,   17-20-0444-0019-0000,   17-20-0444-0019-0000,   17-20-0444-0019-0000,   17-20-0444-0019-0000,   17-20-0444-0019-0000,   17-20-0444-0019-0000,   17-20-0444-0019-0000,   17-20-0444-0019-0010,   17-20-0448-0019-0010,   17-2	17-20-0440 0015-0000   PROFESSIONATION   PROFESSIONATION   PROFESSIONATION   PROFESSIONATION   PROFESSIONATION   PROFESSIONATIONATION   PROFESSIONATIONATION   PROFESSIONATIONATIONATION   PROFESSIONATIONATIONATIONATIONATIONATIONATIONAT					RESERVE GAS COMPANY	FEE CONVEYANCE	111	2 2
17-20-0444-0015-0000,   17-20-0444-0015-0010,   17-2	17.8-0-444-0019-000.				BESTEVE GAS COMPANY	HOPE NATURAL GAS COMPANY	FEE CONVEYANCE	208	573
17-20-0444-0018-0000,   17-20-0444-0018-0000,   17-20-0444-0019-0000,   17-20-0444-0018-0000,   17-20-0444-0018-0000,   17-20-0444-0019-0010,   17-20-0444-0019-0010,   17-2	17-30-0444-0019-0000   CONSQUIDATED GAS EXPENDENTION   CONSQ		17-20-0443-0015-0000.		HOPE NATURAL GAS COMPANY	CONSOLIDATED GAS SUPPLY CORPERATION	MERGER/NAME CHANGE	903	51
17-20-0444-0018-0000,   CONSOLIDATED GAS TRANSMISSION CORPERATION   CONSOLIDATED GAS TRANSMISSION CORPERATION   CONSOLIDATED GAS TRANSMISSION CORPERATION   CONSOLIDATED GAS TRANSMISSION, INC   CING GAS TRANSMISSION, INC   CING GAS TRANSMISSION, INC   CING GAS COMPANY, LLC   CING GAS COMPANY   CING GAS COMPANY, LLC   CING GAS COMPANY, LLC   CING GAS SUPPLY CORPERATION   CONSOLIDATED GAS SUPPLY CORPERATION   CONSOL	17-30-044-0019-0000   CONCOLDATION OF TRANSMISSION COPERATION   CHE GAS		17-20-044-0018-0001		CONSOLIDATED GAS SUPPLY CORPERATION	CONSOLIDATED GAS TRANSMISSION CORPERATION	ASSIGNMENT	1136	250
17-20-0444-0016-0000,   CING GAS TRANSMISSION CORPERATION   DOMINION TRANSMISSION, INC   CINK GAS COMPARY, LLC   CINK GAS COMPARY, LLC   CINK GAS COMPARY, LLC   CINK GAS COMPARY, LLC   MOBLE ENIERGY, INC   CINK GAS COMPARY   CONSOLIDATED GAS TRANSMISSION CORPERATION   CONSOLIDATED GAS TRANSMISSION CORPERATION   CONSOLIDATED GAS TRANSMISSION CORPERATION   CONSOLIDATED GAS TRANSMISSION, INC   CINK GAS COMPARY, LLC   CINK GAS TRANSMISSION CORPERATION   CONSOLIDATED GAS TRANSMISSION CORPERATION   CONSOLIDATED GAS TRANSMISSION CORPERATION   CINK GAS COMPARY, LLC   CINK	17-30-0444-001-0000   COMMISSION CORPERATION   COMMISSION INC.		17-20-0444-0018-0000			CNG GAS TRANSMISSION CORPERATION	MERGER/NAME CHANGE	51	795
17-20-0444-001-0000	17-20-0444-0019-0000	FK052752	17-20-044-0016-0000	0100381000	CNG GAS TRANSMISSION CORPERATION	DOMINION TRANSMISSION, INC	MERGER/NAME CHANGE	85	38
17-20-0444-0019-0001   CINX GAS COMPANY, LLC   NOBLE ENERGY, INC     CINX GAS COMPANY, LLC   NOBLE ENERGY, INC     CINX GAS COMPANY, LLC   NOBLE ENERGY, INC     CINX GAS COMPANY, LLC   HIGE ENERGY, INC     CINX GAS COMPANY LLC   HIGE ENERGY, INC     CINX GAS COMPANY LLC   HOPE NATURAL GAS COMPANY     17-20-0444-0020-0000, GLOID TOPE GAS TRANSMISSION CORPERATION   CONSOLIDATED GAS TRANSMISSION CORPERATION     17-20-0444-0022-0000, GLOID TOPE GAS TRANSMISSION CORPERATION   CONSOLIDATED GAS TRANSMISSION CORPERATION     17-20-0444-0022-0000, GLOID TOPE GAS TRANSMISSION CORPERATION   CONSOLIDATED GAS TRANSMISSION CORPERATION     17-20-0444-0022-0000, GLOID TOPE GAS TRANSMISSION CORPERATION   CONSOLIDATED GAS TRANSMISSION CORPERATION     CONSOLIDATED GAS TRANSMISSION CORPERATION   CONSOLIDATED GAS TRANSMISSION CORPERATION     CONSOLIDATED GAS TRANSMISSION CORPERATION   CONSOLIDATED GAS SUPPLY CORPERATION     CONSOLIDATED GAS TRANSMISSION CORPERATION   CONSOLIDATED GAS SUPPLY CORPERATION     CONSOLIDATED GAS TRANSMISSION CORPERATION   CONSOLIDATED GAS SUPPLY CORPERATION     CONSOLIDATED GAS SUPPLY	1-30-0010		17-20-0444-0017-0000,		DOMINION TRANSMISSION, INC	CNX GAS COMPANY, LLC	FARMOUT AGREEMENT	1522	
CINX GAS COMPANY, LLC	CONTRICTOR   CON		21-03-007B-0001-0000		DOMINION TRANSMISSION, INC	CNX GAS COMPANY, ILC	AMENDMENT TO FARMOUT AGREEMENT	1524	491
CUX GAS COMPANY, LLC   HOBIL ENERGY, INC	The Care Component   The Care Care Component   The Care Care Care Care Care Care Care Car				CNX GAS COMPANY, LLC	NOBLE ENERGY, INC	LIMITED PARTIAL ASSIGNMENT OF FARMOUT	1543	1235
17-20-044-001-0000,   CONSOLIDATE GAS COMPANY   ILC   CONSOLIDATE GAS COMPANY   ILC   CONSOLIDATE GAS COMPANY   ILC   CONSOLIDATE GAS TRANSMISSION CORPERATION   CONSOLIDATE GAS SUPPLY CORPER	17-20-0444-0001-0000,   CONSCIUNTING CONSC				CNX GAS COMPANY, LLC	NOBLE ENERGY, INC	ASSIGNMENT	1584	942
17-20-0444-001-0000,   CONSQUIDATED AND JANE MINTER AND MINTE	17-20-0444-0010-0000,   PRESERVE GAS COMPANY   RISERVE GAS COMPANY   RICE CONFIGURATION   R				NOBLE ENERGY, INC	HG ENERGY II APPALACHIA, LLC	ASSIGNMENT	TBO	۲
17-20-444-0001-0000,   RESERVE GAS COMPANY   HOPE NATURAL GAS COMPANY   LC   CONSOLIDATED GAS TRANSMISSION CORPEGATION   CONSOLIDATED GAS TRANSMISSION CORPEGATION   DOMINION TRANSMISSION, INC   NOBLE ENERGY, INC   CIX GAS COMPANY, LC   HOPE NATURAL GAS COMPANY, LC   HOPE NATURAL GAS COMPANY   LC	17-20-0444-001-000,   COUNCEDUATE OF COUNCEDUATION   COUNCEDUATION   FEE COUNCEDUATE   1940								
17-20-0444-0001-0000,   HOPE NATURAL GAS COMPANY   CONSOLIDATED GAS SUPPLY CORPERATION   CONSOLIDATED GAS SUPPLY CORPERATION   CONSOLIDATED GAS TRANSMISSION CORPERATION   HOPE NATURAL GAS COMPANY LLC   HOPE NATURAL GAS COMPANY LC   HOPE NATURAL GAS COMPANY CONSOLIDATED GAS TRANSMISSION CORPERATION   CONSOLIDATED GAS TRANSMISSION INC   CONSOLIDATED	17-20-6444-0001-0000,   HOPE MATURAL GAS COMMANY   GONSOLUMENTO A PRESENTION   HEREEPATION   HEREEPATION   HEREEPATION   HEREEPATION   HEREEPATION   HEREEPATION   HEREEPATION   HEREEPATION   12-0-0-044-0002-0000,   HOPE MATURAL GAS SUPPLY CORPEATION   CNG-SOLUMENT C ASSIGNMENT OF FARMOUT SASIGNMENT SASIGN					RESERVE GAS COMPANY	NOT LESS THAN 1/8	174	2
17-20-0444-0019-0001   17-20-0444-0019-0002   17-20-044-0019-0002   17-20-044-0019-0002   17-20-044-0019-0002   17-20-044-0019-0002   17-20-044-0019-0002   17-20-044-0019-0002   17-	17-20-0444-002-0000,   CONSCIUNTED GAS TRANSMISSION CORPERATION   CONSCIUNATE GAS TRANSMISSION CORPERATION   CONSCIUNATE GAS TRANSMISSION CORPERATION   CONSCIUNATE GAS TRANSMISSION CORPERATION   CONSCIUNATE CANAGE   S1     17-20-0444-002-0000,   CONSCIUNATE GAS TRANSMISSION CORPERATION   CONSCIUNATE CANAGE   S1     17-20-0444-002-0000,   CONSCIUNATE CANAGE   CON		13.30.0444.0001.0000			HOPE NATURAL GAS COMPANY	FEE CONVEYANCE	208	22
17-20-0444-0019-0000,   CONSOLIDATED GAS TRANSMISSION CORPERATION   CONSOLIDATED GAS TRANSMISSION CORPERATION   CONSOLIDATED GAS TRANSMISSION CORPERATION   CONSOLIDATED GAS TRANSMISSION CORPERATION   DOMINION TRANSMISSION CORPERATION   DOMINION TRANSMISSION, INC   CUX GAS COMPANY, LLC   CUX GAS COMPANY, LLC   NOBLE ENERGY, INC   CUX GAS COMPANY, LLC   HG ENERGY INC   CONSOLIDATED GAS SUPPLY CORPERATION   CONSOLIDATED GAS SUPPLY CORPERATION   CONSOLIDATED GAS SUPPLY CORPERATION   CONSOLIDATED GAS TRANSMISSION CORPERATION   CONSOLIDATED GAS TRA	17-20-044-002-0000,   COUNCOLIDATE DEST TRANSMISSION CORPERATION   MERGER/NAME CHANGE   51     17-20-044-002-0000,   COUNCOLIDATE DEST TRANSMISSION CORPERATION   MERGER/NAME CHANGE   51     17-20-044-002-0000,   COUNCOLIDATE DEST TRANSMISSION, INC   MERGER/NAME CHANGE   51     17-20-044-002-0000,   COUNCOLIDATE DEST TRANSMISSION, INC   MOBIE BERGN, IN		17-20-0444-0001-0000,			CONSOLIDATED GAS SUPPLY CORPERATION	MERGER/NAME CHANGE	88	9
17-20-044-0024-0000	17-20-0444-0023-0000	2000	1/20-04-4-0002-0000,			CONSOLIDATED GAS TRANSMISSION CORPERATION	ASSIGNMENT	1136	22
17-20-0444-0015-0000,   DOMINION TRANSMISSION CORPERATION   DOMINION TRANSMISSION, INC     17-20-0444-0025-0000,   DOMINION TRANSMISSION, INC   CINX GAS COMPANY, LLC   MOBIE ENERGY, INC   MOBIL ENERGY, IN	17-20-0444-0025-0000,   CONGAINTENNISSION, INC	FK052896	21-03-0078-0001-0000	0101020000	CONSOLIDATED GAS TRANSMISSION CORPERATION	CNG GAS TRANSMISSION CORPERATION	MERGER/NAME CHANGE	51	26
17-20-0444-0025-0000	17-20-0444-0024-0024-0024-0024-0024-0024-	FK103030	1/-20-0444-0023-0000,		CNG GAS TRANSMISSION CORPERATION	DOMINION TRANSMISSION, INC	MERGER/NAME CHANGE	88	362
17-20-0444-0020000	17-20-0444-002-0000		1/-20-0444-0024-0000,		DOMINION TRANSMISSION, INC	CNX GAS COMPANY, LLC	FARMOUT AGREEMENT	1522	
CUX GAS COMPANY, LLC	CINY GAS COMPANY, LLC   HIGE REBROY, INC   CONSOLIDATE DEAS SUPPLY CORPEGATION   MERGER/HAME CHANGE   903		17-20-0444-0025-0000		CNX GAS COMPANY, LLC	NOBLE ENERGY, INC	LIMITED PARTIAL ASSIGNMENT OF FARMOUT	1543	12
HOPE INTERPRETATION	HIGE RERROY, INC				CNX GAS COMPANY, LLC	NOBLE ENERGY, INC	ASSIGNMENT	1584	942
A W RHODES AND MARY RHODES   HOPE NATURAL GAS COMPANY	A W RHODES AND MARY RHODES   HOPE NATURAL GAS COMPANY   CONSOLIDATED GAS SUPPLY CORPEATION   MERGER/MARIE CHANGE   903				NOBLE ENERGY, INC	HG ENERGY II APPALACHIA, LLC	ASSIGNMENT	Œ	=
17-20-044-019-011   CONSOLIDATED GAS COMPANY   CONSOLIDATED GAS SUPPLY CORPERATION   CONSOLIDATED GAS TRANSMISSION CORPERATION   CANGAGA - ON INDIANAM CORPERATION   CANGAGA - O	17-20-0444-0019-0001, CONSCUIDATED GAS SUPPLY CORPERATION   CONSCUIDATED GAS TRANSMISSION CORPERATION   ASSIGNMENT   1.136				A W RHODES AND MARY RHODES	HOPE NATURAL GAS COMPANY	NOT LESS THAN 1/8	175	162
17-20-0444-0019-0011  17-20-0444-0019-0011  17-20-0444-0019-0011  17-20-0444-0019-0011  17-20-044-0019-0011  17-20	17-20-044-9999-0002,   CONSOLIDATED GAS SUPPLY CORPERATION   CONSOLIDATED GAS TRANSMISSION CORPERATION   CONSOLIDATED GAS TRANSMISSION CORPERATION   CING GAS COMPANY, LLC   FRANDOLT AGREEMENT   LIST   CINK GAS COMPANY, LLC   NOBLE ENERGY, INC   HIG ENERGY, INC   HIG ENERGY, INC   HIG ENERGY, INC   ASSIGNMENT OF FRANDOLT   TED				LOSE NATIONAL CAS COMPANY	CONSOLIDATED GAS SUPPLY CORPERATION	MERGER/NAME CHANGE	903	178
17-20-0444-9999-0002, Q100459000 CNG GAS TRANSMISSION CORPERATION CORPERATION CORPERATION TRANSMISSION CORPERATION DOMINION TRANSMISSION, INC CNG GAS TRANSMISSION, INC CNG GA	17-20-0444-9999-0002,   CONSOLIDATED GAS TRANSMISSION CORPERATION   MERGER/NAME CHANGE   S1			-	CONSOLIDATED GAS SUPPLY CORPERATION	l	ASSIGNMENT	1136	25
17-20-0444-9999-9002, 0100459000 CING GAS TRANSMISSION, INC CING GAS COMPANY, LLC CING G	17-20-0444-0919-0002, CIUG GAS TRANSMISSIONI CORPERATION CINC GAS COMPANY, LLC RAMOUT AGREENIENT 1522  OTHER CONTRANSMISSIONI LLC RAMOUT TRANSMISSIONI CORPERATION CINC GAS COMPANY, LLC RAMOUT GREENIENT 1523  OTHER COMPANY, LLC RAMOUT TRANSMISSIONI CORPERATION CINC GAS COMPANY, LLC RAMOUT FARMOUT 1524  OTHER COMPANY, LLC RAMOUT 1524				CONSOLIDATED GAS TRANSMISSION CORPERATION		MERGER/NAME CHANGE	51	795
17-20-044-0019-0011 COMPANY ILC NOBIE ENERGY, INC. CINX GAS COMPANY, ILC NOBIE ENERGY, INC. CINX GAS COMPANY, ILC NOBIE ENERGY, INC. NOBIE ENERGY, INC. NOBIE ENERGY, INC.	17-20-044-0019-0011  DOMINION TRANSMISSION, INC  CINX GAS COMPANY, LLC  ASSIGNMENT  TED  CINX GAS COMPANY, LLC  CI	G	17-20-0444-9999-0002,	0100450000	CONSCIDENCE TO THE PROPERTY OF		MERGER/NAME CHANGE	33	36,
CHY GAS COMPANY, ILC NOBIE ENERGY, INC	CONTRACTOR OF THE CONTRACT OF	AFT.	17-20-0444-0019-0011	2005	DOMINION TRANSMISSION INC		FARMOUT AGREEMENT	1522	1
CONTRACTOR CONTRACTOR INC.	CONTINUE CONTINUE NOBLE ENERGY, INC.  NOBLE EN	O,	R		CNX GAS COMPANY, LLC		LIMITED PARTIAL ASSIGNMENT OF FARMOUT	1543	1235
	NOBLE ENERGY, INC HG ENERGY II APPALACHIA, LLC ASSIGNMENT SELECTION OF	C	EC		CNX GAS COMPANY, LLC		ASSIGNMENT	1584	8
NOBIE ENERGY, INC HG ENERGY II APPAIACHIA, LLC	VED Gas	יי ו עי	المجاد		NOBLE ENERGY, INC		ASSIGNMENT	тво	TBD
	int of	2017	g Gas						
od Gas		n o ote	ì						



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

September 21, 2017

Laura Adkins WV DEP Division of Oil & Gas 601 57<sup>th</sup> Street Charleston, WV 25304

RE: Drilling Under Roads – KST5 DHS

Union District, Harrison County

West Virginia

Dear Ms. Adkins:

HG Energy II Appalachia, LLC, has the right to drill, stimulate and produce wells that are drilled under the County and State Roads as designated on the plats.

Should you have any questions or desire further information, please contact me at <a href="mailto:dwhite@hgenergyllc.com">dwhite@hgenergyllc.com</a> or 304-420-1119.

Very truly yours,

Diane White

Diane C. White

Enclosures

Office of Oil and Gas

OCT 01 2017

W Department of Environmental Protection

#### STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS **NOTICE CERTIFICATION**

ACOID ND

Date of Notic	ce Certification: 09/21/2017	API N	0.47-033	05817 DD
		_	tor's Well No. KST5	DHS
**		Well P	ad Name: KST5	
Notice has l				
	e provisions in West Virginia Code § tract of land as follows:	22-6A, the Operator has provided th	e required parties w	ith the Notice Forms listed
State:	West Virginia	Easting	g: 545520.0	
County:	Harrison	UTM NAD 83 Porthi		
District:	Union	Public Road Access:	CR 19/18	
Quadrangle:	West Milford WV 7.5'	Generally used farm nam	ne: James Ivan McDo	onald
Watershed:	Middle West Fork Creek	<del></del>		
prescribed by it has provide information re of giving the requirements Virginia Code	West Virginia Code § 22-6A-7(b), the secretary, shall be verified and sled the owners of the surface describequired by subsections (b) and (c), se surface owner notice of entry to su of subsection (b), section sixteen one § 22-6A-11(b), the applicant shall to have been completed by the applicant	nall contain the following information bed in subdivisions (1), (2) and (4), ction sixteen of this article; (ii) that the rvey pursuant to subsection (a), sect of this article were waived in writing cender proof of and certify to the secre-	n: (14) A certification subsection (b), second requirement was sion ten of this artion the surface ow	on from the operator that (i) etion ten of this article, the deemed satisfied as a result cle six-a; or (iii) the notice yner; and Pursuant to West
that the Ope	West Virginia Code § 22-6A, the Op rator has properly served the required	erator has attached proof to this Noti d parties with the following:	ce Certification	OOG OFFICE USE
FLEASE CIT	SER ALL HIAT ATTE			UNLI
1. NO	TICE OF SEISMIC ACTIVITY or	NOTICE NOT REQUIRED BE SEISMIC ACTIVITY WAS CONI		☐ RECEIVED/ NOT REQUIRED
☐ 2. NO	TICE OF ENTRY FOR PLAT SURV	EY or 🔳 NO PLAT SURVEY WA	S CONDUCTED	□ RECEIVED
☐ 3. NO	TICE OF INTENT TO DRILL or	NOTICE NOT REQUIRED BE NOTICE OF ENTRY FOR PLATS WAS CONDUCTED or		☐ RECEIVED/ NOT REQUIRED
		WRITTEN WAIVER BY SUI (PLEASE ATTACH)	RFACE OWNER  ECEIVED Gas of Oil and Gas	
■ 4. NO	TICE OF PLANNED OPERATION	Office	of Ull 21.2	☐ RECEIVED
■ 5. PUI	BLIC NOTICE	00	T 0 1 2017	☐ RECEIVED
■ 6. NO	TICE OF APPLICATION	Envir W	V Department of onmental Protection	☐ RECEIVED

#### **Required Attachments:**

The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication date verification or the associated Affidavit of Publication. The attached Notice Forms and Certifications of Notice shall serve as proof that the required parties have been noticed as required under West Virginia Code § 22-6A. Pursuant to West Virginia Code § 22-6A-11(b), the Certification of Notice to the person may be made by affidavit of personal service, the return receipt card or other postal receipt for certified mailing.

#### Certification of Notice is hereby given:

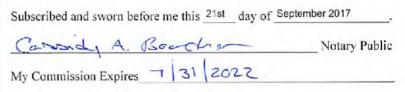
 Well Operator:
 HG Energy II Appalachia, LLC
 Address:
 5260 Dupont Road

 By:
 Diane White
 Parkersburg, WV 26101

 Its:
 Agent
 Facsimile:
 304-863-3172

 Telephone:
 304-420-1119
 Email:
 dwhite@hgenergyllc.com





Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as 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 or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

RECEIVED Office of Oil and Gas

OCT 0 1 2017

WV Department of Environmental Protection

API NO. 47- 033- 05817 DD
OPERATOR WELL NO. KST5 DHS
Well Pad Name: KST5

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

Notice Time Requirement: notice shall be provided no later the Date of Notice: 09/19/2017 Date Permit Application Filed: 09/	
Notice of:	
■ PERMIT FOR ANY ☐ CERTIFICATE OF AP WELL WORK ☐ CONSTRUCTION OF	PROVAL FOR THE AN IMPOUNDMENT OR PIT
Delivery method pursuant to West Virginia Code § 22-6A-1	0(b)
	HOD OF DELIVERY THAT REQUIRES A EIPT OR SIGNATURE CONFIRMATION
erosion and sediment control plan required by section seven of owners of record of the surface of the tract on which the well is tract or tracts overlying the oil and gas leasehold being develop roads or other land disturbance as described in the erosion and seven of this article; (3) The coal owner, operator or lessee, in t located [sic] is known to be underlain by one or more coal sean oil and gas leasehold being developed by the proposed well wo enlargement, alteration, repair, removal or abandonment of any Any surface owner or water purveyor who is known to the appl within one thousand five hundred feet of the center of the well domestic animals; and (6) The operator of any natural gas stora (c)(1) If more than three tenants in common or other co-owners the lands, the applicant may serve the documents required upon	a receipt or signature confirmation, copies of the application, the this article, and the well plat to each of the following persons: (1) The tor is proposed to be located; (2) The owners of record of the surface ed by the proposed well work, if the surface tract is to be used for sediment control plan submitted pursuant to subsection (c), section the event the tract of land on which the well proposed to be drilled is as; (4) The owners of record of the surface tract or tracts overlying the rk, if the surface tract is to be used for the placement, construction, impoundment or pit as described in section nine of this article; (5) licant to have a water well, spring or water supply source located pad which is used to provide water for consumption by humans or ge field within which the proposed well work activity is to take place. The of interests described in subsection (b) of this section hold interests in the person described in the records of the sheriff required to be an of this code. (2) Notwithstanding any provision of this article to the aless the lien holder is the landowner.
■ SURFACE OWNER(s)	☐ COAL OWNER OR LESSEE
Name: James I. McDonald Address: 7416 Good Hope Pike	Name: NA Address:
Lost Creek, WV 26385 Name:	
Address:	☐ COAL OPERATOR
Access to the second of the se	Name: NA RECEIVED Office of Oil and Gas
SURFACE OWNER(s) (Road and/or Other Disturbance)	OCT 0 1 2017
Name: Same as Above Address:	WATER PURVEYOR(s)
	Name: NA WV Department of Environmental Protection
Name:Address:	Address:
SURFACE OWNER(s) (Impoundments/Pits) Name: Address:	OPERATOR OF ANY NATURAL GAS STORAGE FIELD Name: Dominion Transmission Inc Ronald Walden Address: 445 West Main Street Clarksburg, WV 26301
	*Please attach additional forms if necessary

WW-6A

RECEIVED Office of Oil and Gas

OCT 01 2017 API NO. 47-033 0581705 OPERATOR WELL NO. KST6 DHS

WV Department of Well Pad Name: KSTS Environmental Protection

Notice is hereby given:

(5-12)

Pursuant to West Virginia Code § 22-6A-10(b), notice is hereby given that the undersigned well operator has applied for a permit for well work or for a certificate of approval for the construction of an impoundment or pit.

#### This Notice Shall Include:

Pursuant to W. Va. Code § 22-6A-10(b), this notice shall include: (1) copies of the application; (2) the crosion and sediment control plan required by section seven of this article; and (3) the well plat.

Pursuant to W. Va. Code § 22-6A-10(f), this notice shall also include; (1) a statement of the time limits for filing written comments; (2) who may file written comments; (3) the name and address of the secretary for the purpose of filing the comments and obtaining additional information; and (4) a statement that the persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting <a href="https://www.dep.wv.gov/oil-and-gas/pages/default.aspx">www.dep.wv.gov/oil-and-gas/pages/default.aspx</a>.

#### Water Well Testing:

Pursuant to West Virginia Code § 22-6A-10(d), notification shall be made, with respect to surface landowners identified in subsection (b) or water purveyors identified in subdivision (5), subsection (b) of this section, of the opportunity for testing their water well.

#### Water Testing Laboratories:

Pursuant to West Virginia Code § 22-6A-10(i), persons entitled to notice pursuant to subsection (b) of this section may contact the department to ascertain the names and locations of water testing laboratories in the subject area capable and qualified to test water supplies in accordance with standard accepted methods. In compiling that list of names the department shall consult with the state Bureau for Public Health and local health departments.

#### Well Location Restrictions

Pursuant to W. Va, Code § 22-6A-12, Wells may not be drilled within two hundred fifty feet measured horizontally from any existing water well or developed spring used for human or domestic animal consumption. The center of well pads may not be located within six hundred twenty-five feet of an occupied dwelling structure, or a building two thousand five hundred square feet or larger used to house or shelter dairy cattle or poultry husbandry. This limitation is applicable to those wells, developed springs, dwellings or agricultural buildings that existed on the date a notice to the surface owner of planned entry for surveying or staking as provided in section ten of this article or a notice of intent to drill a horizontal well as provided in subsection (b), section sixteen of this article was provided, whichever occurs first, and to any dwelling under construction prior to that date. This limitation may be waived by written consent of the surface owner transmitted to the department and recorded in the real property records maintained by the clerk of the county commission for the county in which such property is located. Furthermore, the well operator may be granted a variance by the secretary from these distance restrictions upon submission of a plan which identifies the sufficient measures, facilities or practices to be employed during well site construction, drilling and operations. The variance, if granted, shall include terms and conditions the department requires to ensure the safety and protection of affected persons and property. The terms and conditions may include insurance, bonding and indemnification, as well as technical requirements. (b) No well pad may be prepared or well drilled within one hundred feet measured horizontally from any perennial stream, natural or artificial lake, pond or reservoir, or a wetland, or within three hundred feet of a naturally reproducing trout stream. No wellpad may be located within one thousand feet of a surface or ground water intake of a public water supply. The distance from the public water supply as identified by the department shall be measured as follows: (1) For a surface water intake on a lake or reservoir, the distance shall be measured from the boundary of the lake or reservoir. (2) For a surface water intake on a flowing stream, the distance shall be measured from a semicircular radius extending upstream of the surface water intake. (3) For a groundwater source, the distance shall be measured from the wellhead or spring. The department may, in its discretion, waive these distance restrictions upon submission of a plan identifying sufficient measures, facilities or practices to be employed during well site construction, drilling and operations to protect the waters of the state. A waiver, if granted, shall impose any permit conditions as the secretary considers necessary. (c) Notwithstanding the foregoing provisions of this section, nothing contained in this section prevents an operator from conducting the activities permitted or authorized by a Clean Water Act Section 404 permit or other approval from the United States Army Corps of Engineers within any waters of the state or within the restricted areas referenced in this section. (d) The well location restrictions set forth in this section shall not apply to any well on a multiple well pad if at least one of the wells was permitted prior to the effective date of this article. (e) The secretary shall, by December 31, 2012, report to the Legislature on the noise, light, dust and volatile organic compounds generated by the drilling of horizontal wells as they relate to the well location restrictions regarding occupied dwelling structures pursuant to this section. Upon a finding, if any, by the secretary that the well location restrictions regarding occupied dwelling structures are inadequate or otherwise require alteration to address the items examined in the study required by this subsection, the secretary shall have the authority to propose for promulgation legislative rules establishing guidelines and procedures regarding reasonable levels of noise, light, dust and volatile organic compounds relating to drilling horizontal wells, including reasonable means of mitigating such WW-6A (5-12)

factors, if necessary.

API NO. 47- 033- 0	5817DD
OPERATOR WELL NO.	, ,
Well Pad Name: KST5	

#### Written Comment:

Pursuant to West Virginia Code § 22-6A-11(a), all persons described in subsection (b), section ten of this article may file written comments with the secretary as to the location or construction of the applicant's proposed well work within thirty days after the application is filed with the secretary. All persons described in West Virginia Code § 22-6A-10(b) may file written comments as to the location or construction of the applicant's proposed well work to the Secretary at:

Chief, Office of Oil and Gas Department of Environmental Protection 601 57<sup>th</sup> St. SE Charleston, WV 25304 (304) 926-0450

Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water. NOTE: YOU ARE NOT REQUIRED TO FILE ANY COMMENT.

#### Time Limits and Methods for Filing Comments.

The law requires these materials to be served on or before the date the operator files its Application. You have THIRTY (30) DAYS after the filing date to file your comments. Comments must be filed in person or received in the mail by the Chief's office by the time stated above. You may call the Chief's office to be sure of the date. Check with your postmaster to ensure adequate delivery time or to arrange special expedited handling. If you have been contacted by the well operator and you have signed a "voluntary statement of no objection" to the planned work described in these materials, then the permit may be issued at any time.

Pursuant to West Virginia Code § 22-6A-11(c)(2), Any objections of the affected coal operators and coal seam owners and lessees shall be addressed through the processes and procedures that exist under sections fifteen, seventeen and forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article. The written comments filed by the parties entitled to notice under subdivisions (1), (2), (4), (5) and (6), subsection (b), section ten of this article shall be considered by the secretary in the permit issuance process, but the parties are not entitled to participate in the processes and proceedings that exist under sections fifteen, seventeen or forty, article six of this chapter, as applicable and as incorporated into this article by section five of this article.

#### **Comment Requirements**

Your comments must be in writing and include your name, address and telephone number, the well operator's name and well number and the approximate location of the proposed well site including district and county from the application. You may add other documents, such as sketches, maps or photographs to support your comments.

Disclaimer: All comments received will be placed on our web site <a href="http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx">http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx</a> and the applicant will automatically be forwarded an email notice that such comments have been submitted. The applicant will be expected to provide a response to comments submitted by any surface owner, water purveyor or natural gas storage operator noticed within the application.

#### Permit Denial or Condition

The Chief has the power to deny or condition a well work permit. Pursuant to West Virginia Code § 22-6A-8(d), the permit may not be issued or be conditioned, including conditions with respect to the location of the well and access roads prior to issuar REGENCED Office of Oil and Gas director determines that:

- (1) The proposed well work will constitute a hazard to the safety of persons;
- (2) The plan for soil erosion and sediment control is not adequate or effective;
- (3) Damage would occur to publicly owned lands or resources; or
- (4) The proposed well work fails to protect fresh water sources or supplies.

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A permit may also be denied under West Virginia Code § 22-6A-7(k), the secretary shall deny the issuance of a permit if the secretary determines that the applicant has committed a substantial violation of a previously issued permit for a horizontal well, including the applicable erosion and sediment control plan associated with the previously issued permit, or a substantial violation of one or more of the rules promulgated under this article, and in each instance has failed to abate or seek review of the violation within the time prescribed by the secretary pursuant to the provisions of subdivisions (1) and (2), subsection (a), section five of this article and the rules promulgated hereunder, which time may not be unreasonable.

Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the permit if the person requests receipt of them as a part of the written comments submitted concerning the permit application. Such persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

Notice is hereby given by:

Well Operator: HG Energy II Appalachia, LLC

Telephone: 304-420-1119

Email: dwhite@hgenergyllc.com

Address: 5260 Dupont Road

Parkersburg, WV 26101

Facsimile: 304-863-9127

#### Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as 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 or your personal information, please contact DEP's Chief Privacy Officer at <a href="mailto:depprivacyofficer@wv.gov">depprivacyofficer@wv.gov</a>.

OFFICIAL SEAL

NOTARY PUBLIC: STATE OF WEST VIRGINIA

MARK J SCHALL

H G Energy L L C

PO Box 5519, Vienna, WY 28105

My Commission Expires November 2, 2021

Subscribed and sworn before me this

and the same of th

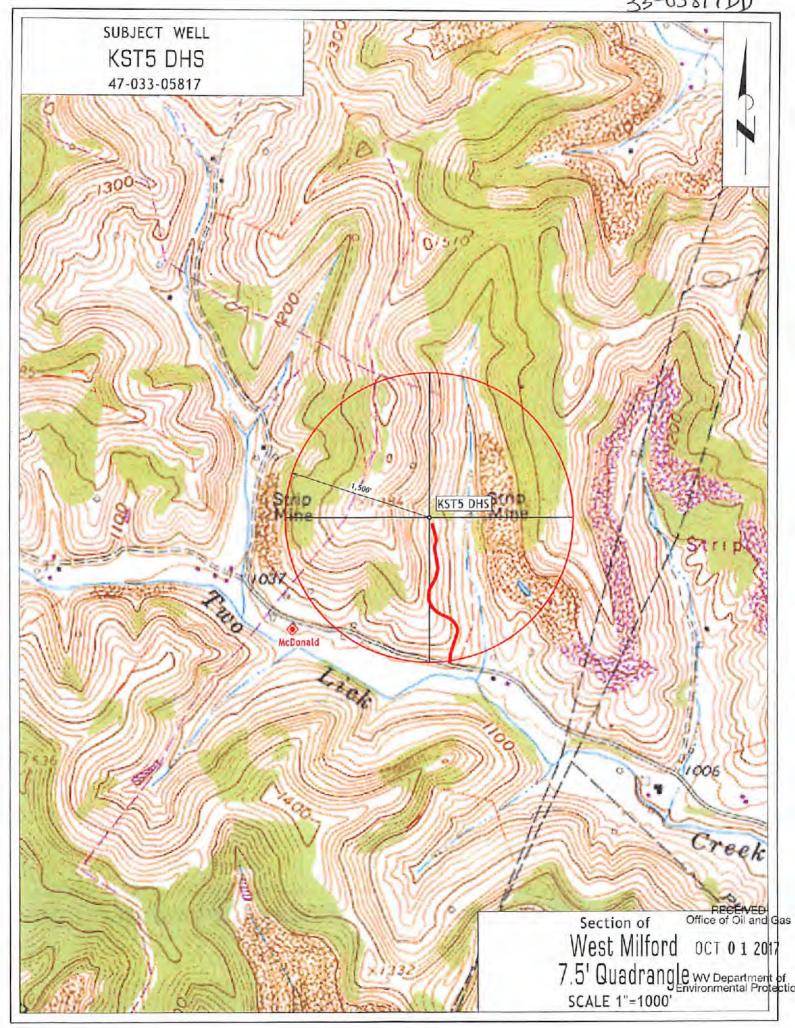
Notary Public

My Commission Expires

11/2/2021

RECEIVED Office of Oil and Gas

OCT 0 1 2017



## **HG Energy, LLC**

Certified Mail Receipt
KST5 DHS
WW-6A4W Notice of Intent to Drill Waiver

- See Attached Waiver-

RECEIVED Office of Oil and Gas

OCT 0 1 2017

WV Department of Environmental Protection WW-6A4W (1/12)

Operator Well No. KST5A,B,C,D,E,F,(HS)

# STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS NOTICE OF INTENT TO DRILL

## WAIVER

Pursuant to W. Va. Code § 22-6A-16(b), at least ten days prior to filing a permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner notice of its intent to enter upon the surface owner's land for the purpose of drilling a horizontal well: *Provided*, That notice given pursuant to subsection (a), section ten of this article satisfies the requirements of this subsection as of the date the notice was provided to the surface owner: *Provided, however,* That the notice requirements of this subsection may be waived in writing by the surface owner. The notice, if required, shall include the name, address, telephone number, and if available, facsimile number and electronic mail address of the operator and the operator's authorized representative.

#### Surface Owner Waiver:

I, <u>James 1. McOcoaco</u>, hereby state that I have read the notice provisions listed above and hereby waive the notice requirements under West Virginia Code § 22-6A-16(b) for the tract of land as follows:

State:	West Virginia	UTM NAD 83 Easting:
County:	Harrison	Northing:
District:	Union-Outside	Public Road Access:
Quadrangle:		Generally used farm name:
Watershed:		
Name:	NES 1. McDOWALD	Signature: June Q. M. Onle
Address:	16 GOOD HOPE PIKE	
	EK, WV 26385	Date: 8-28-17

#### Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as 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 or your personal information, please contact DEP's Chief Privacy Officer at <a href="mailto:depprivacyofficer@wv.gov">depprivacyofficer@wv.gov</a>.

Office of Oil and Gas

OCT 0 1 2017

WV Department of Environmental Protection

WW-6A5 (1/12)

Operator Well No. KST5 DHS

#### STATE OF WEST VIRGINIA DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS NOTICE OF PLANNED OPERATION

■ CER	ALL IN CONTRACT OF A SECOND		Application Filed: 09/1		application.
	nethod pursuant to We	st Virginia Code §	§ 22-6A-16(c)		
	TIFIED MAIL		] HAND		
REI	URN RECEIPT REQUI	ESTED	DELIVERY		
return receithe planned required to drilling of damages to (d) The not of notice.  Notice is h	ipt requested or hand de d operation. The notice be provided by subsecti a horizontal well; and ( o the surface affected by	livery, give the sur e required by this ion (b), section ten (3) A proposed sur oil and gas operation otion shall be given	face owner whose land subsection shall inclu- of this article to a surfa rface use and compens ons to the extent the da a to the surface owner a	I will be used for de: (1) A copy ace owner whose sation agreement amages are com	cation, an operator shall, by certified mail or the drilling of a horizontal well notice of of this code section; (2) The information se land will be used in conjunction with the nt containing an offer of compensation for pensable under article six-b of this chapter, sted in the records of the sheriff at the time
A COLUMN TO THE PARTY OF THE PA	James McDonald	of the sheriff at the	Name:		
	416 Good Hope Road		Address	5:	
A STATE OF THE PARTY OF THE PAR	ost Creek, WV 26385		7.74		
	West vingilla code y 2			e undersigned	well operator has developed a planned
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The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as 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 or your personal information, please contact RECEIVED Office of Oil and Gas DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

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## WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

Earl Ray Tomblin Governor 1900 Kanawha Boulevard East • Building Five • Room 110 Charleston, West Virginia 25305-0430 • (304) 558-3505

Paul A. Mattox, Jr., P. E. Secretary of Transportation/ Commissioner of Highways

September 20, 2017

James A. Martin, Chief Office of Oil and Gas Department of Environmental Protection 601 57<sup>th</sup> Street, SE Charleston, WV 25304

Subject: DOH Permit for the KST5HS Well Pad, Harrison County

Dear Mr. Martin,

This well site will be accessed from Permit #04-2014-0458 reissued to HG Energy, LLC for access to the State Road for a well site located off of Harrison County 19/18 SLS.

The operator has signed a DISTRICT WIDE OIL AND GAS ROAD MAINTENANCE BONDING AGREEMENT and provided the required Bond. This operator is currently in compliance with the DOH OIL AND GAS POLICY dated January 3, 2012.

Very Truly Yours,

Gary K. Clayton, P.E.

Jany K. Clayton

Regional Maintenance Engineer Central Office O&G Coordinator

Cc: Matt McGuire

HG Energy, LLC

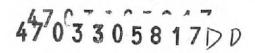
CH, OM, D-4

File

RECEIVED Gas

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WV Department of Environmental Protection



## List of Frac Additives by Chemical Name and CAS #

#### KST5 Well Pad (ASH,BHS,CHS,DHS,EHS,FHS)

Chemical Name	CAS#	Multiple CAS #'s
Pro Shale Slik 405	Mixture	68551-12-2
		7647-14-5
		12125-02-9
		64742-47-8
Pro Hib II	Mixture	68412-54-4
		68607-28-3
		107-21-1
		111-76-2
		67-56-1
		107-19-7
Silica Sand and Ground Sand	Mixture	14808-60-7
		1344-28-1
		1309-37-1
		13463-67-7
Hydrochloric Acid 22 DEG BE	7647-01-0	
PROGEL - 4.5	64742-96-7	
BIO CLEAR 2000	Mixture	25322-68-3
		10222-01-2
SCALE CLEAR SI 112	107-21-1	
PROBREAK 4	Mixture	57-50-1
		107-21-1
Sulfamic Acid	5329-14-6	
PRO - Flow - 102-N	Mixture	67-63-0
		68439-45-2
		2687-96-9
PROGEL - 4	9000-30-0	

Office of Oil and Gas

OCT 01 2017

WV Department of Environmental Protection



LOCATION MAP

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DETAILED SITE PLAN (OF L)



API#3105614 API#3105616 API#3105616

## HG ENERGY II APPALACHIA, LLC

5260 DuPont Road Parkersburg, WV 26101

## KST5HS WELL SITE

#### PAD CENTER LOCATION

NAD 83 - LAT: N 39° 10' 14.53"; LONG: W 80° 28' 22.27" NAD 27 - LAT: N 39° 10' 14.20", LONG: W 80° 28' 22.94" UTM NAD 83 ZONE 17 - N: 4335852.248; E: 545536.849

#### ENTRANCE LOCATION

NAD 83 - LAT: N 39° 09' 59.05"; LONG: W 80° 28' 20.09" NAD 27 - LAT: N 39° 09' 58.72"; LONG: W 80° 28' 21.57" UTM NAD 83 ZONE 17 - N: 4335375.359; E: 545591.936

#### UNION DISTRICT.

#### HARRISON COUNTY, WEST VIRGINIA

Electronic Version of These Plans May Be Viowed at QIOII, GASISAY FILESIREVIEWS



### Blue Mountain Inc.

Engineers and Land Surveyors

11023 Mason Dixon Hwy. Burton, WV 26562-9656 (304) 662-6486





WAL 12/12/18/17



LOCATION MAP

#### ENVIRONMENTAL NOTES

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