



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

Wednesday, February 28, 2018
WELL WORK PERMIT
Horizontal 6A / New Drill

HG ENERGY II APPALACHIA, LLC
5260 DUPONT ROAD

PARKERSBURG, WV 26101

Re: Permit approval for SHL 27 HHS
47-051-01988-00-00

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: SHL 27 HHS
Farm Name: STEVE WARD AND ED WARD
U.S. WELL NUMBER: 47-051-01988-00-00
Horizontal 6A / New Drill
Date Issued: 2/28/2018

Promoting a healthy environment.

03/02/2018

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: 51-01988

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.

03/02/2018

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

1) Well Operator: HG Energy II Appalachia, L.P.

<u>494519932</u>	<u>Marshall</u>	<u>Webster</u>	<u>Majorsville</u>
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Operator ID County District Quadrangle

2) Operator's Well Number: SHL27 HHS Well Pad Name: SHL27

3) Farm Name/Surface Owner: Steve and Ed Ward Public Road Access: Irish Ridge Road

4) Elevation, current ground: 1154' Elevation, proposed post-construction: 1154'

5) Well Type (a) Gas Oil _____ Underground Storage _____
Other _____

(b) If Gas Shallow Deep _____
Horizontal

6) Existing Pad: Yes or No Yes

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Marcellus at 6166'/6217' and 51' in thickness. Anticipated pressure at 4314#.

8) Proposed Total Vertical Depth: 6203'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 15,525'

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11) Proposed Horizontal Leg Length: 8,298'

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12) Approximate Fresh Water Strata Depths: 349'

13) Method to Determine Fresh Water Depths: Offset well data

WV Department of
Environmental Protection

14) Approximate Saltwater Depths: None noted in offsets

15) Approximate Coal Seam Depths: 634' to 644'

16) Approximate Depth to Possible Void (coal mine, karst, other): None - drilling into an interior barrier

17) Does Proposed well location contain coal seams directly overlying or adjacent to an active mine? Yes No _____

(a) If Yes, provide Mine Info: Name: Same as Above
Depth: 634' to 644' - drilling into an interior barrier 934' from proposed mining
Seam: Pittsburgh No. 8
Owner: Consolidation Coal Company (Murray American Energy, Inc.)

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	30"	New	LS	157.5	40'	40'	CTS
Fresh Water	20"	NEW	J-55	94	450'	450'	CTS 30% excess yield = 1.20, CTS
Coal	13 3/8"	NEW	J-55	54.5	1050'	1050'	30% excess yield = 1.20, CTS
Intermediate	9 5/8"	NEW	J-55	40	3032' or 250' below 5th Sand	3032'	30% excess yield = 1.27, CTS
Production	5 1/2"	NEW	P-110	23	15524'	15524'	20% excess yield = 1.19, tail yield = 1.19
Tubing							
Liners							

Handwritten signature and date: 11/20/17

TYPE	Size (in)	Wellbore Diameter (in)	Wall Thickness (in)	Burst Pressure (psi)	Anticipated Max. Internal Pressure (psi)	Cement Type	Cement Yield (cu. ft./k)
Conductor	30"	30"	.500				CTS
Fresh Water	20"	24"	.438	2110	1200	Type 1, Class A	30% excess yield = 1.20, CTS
Coal	13 3/8"	17 1/2"	.380	2730		Type 1/Class A	30% excess yield = 1.20, CTS
Intermediate	9 5/8"	12 3/8" to 12 1/4"	.395	3950		Type 1/Class A	30% excess yield = 1.27, CTS
Production	5 1/2"	8 1/2"	.361	12640	10000	Type 1/Class A	20% excess yield = 1.19, tail yield = 1.19
Tubing							
Liners							

PACKERS

Kind:				RECEIVED
Sizes:				Office of Oil and Gas
Depths Set:				NOV 30 2017
				WV Department of Environmental Protection

WW-6B
(10/14)

API NO. 47- 51 - 01988
OPERATOR WELL NO. SHL27 HHS
Well Pad Name: SHL27

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11/20/17

19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

Drill the vertical depth to the Marcellus at an estimated total vertical depth of approximately 6203 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): 19.325 acres (this is a built pad)

22) Area to be disturbed for well pad only, less access road (acres): 10.228 acres

23) Describe centralizer placement for each casing string:

No centralizers will be used with conductor casing. Freshwater every 3 joints to surface. Coal - Bow Spring on first 2 joints then every third joint to 100' from surface. Intermediate - Bow Spring on first 2 joints then every third joint to 100' from surface. Production - 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.

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

Conductor - N/A. Casing to be drilled in w/ Dual Rotary Rig
Fresh Water - 15.6 ppg PNE-1 + 2.5% bwoc CaCl₂, 30% Excess, Yield = 1.20 / CTS*
Coal - 15.6 ppg PNE-1 + 2.5% bwoc CaCl₂, 30% Excess, Yield = 1.20 / CTS*
Intermediate - 19.2 ppg PNE-1 + 2.5% bwoc CaCl₂, 50 % Excess, Yield = 1.27 CTS*
Production - Lead: 14.3 ppg POZ-PNE-1 + 0.3% bwoc R3 + 1% bwoc EC1 + 0.75 gal/sk FP13L + 0.3% bwoc MPA170, Tail: 14.8 ppg PNE-1 + 0.35% bwoc R3 + 0.75 gal/sk FP13L + 50% bwoc ASCA1 + 0.5% bwoc MPA170, 20% Excess, Lead Yield = 1.19, Tail Yield = 1.94, CTS*

25) Proposed borehole conditioning procedures:

Conductor - Ensure the hole is clean at TD.
Fresh Water - Once casing is at setting depth, circulate a minimum of one hole volume with Fresh Water prior to pumping cement.
Coal - Once casing is at setting depth, Circulate and condition at TD. Circulate a minimum of one hole volume prior to pumping cement.
Intermediate - Once casing is at setting depth, Circulate and condition mud at TD. Circulate a minimum of one hole volume prior to pumping cement.
Production - Once on bottom/TD with casing, circulate at max allowable pump rate for at least 2x bottom up, or until returns and pump pressures indicate the hole is clean. Circulate a minimum of one hole volume prior to pumping cement.

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*Note: Attach additional sheets as needed.

HG Energy II Appalachia, LLC
SHL27 AHS, BHS, CHS, DHS, EHS, HHS, JHS, KHS, LHS, MHS, NHS, OHS
Cement Additives

51-01988

Material Name	Material Type	Material Description	CAS #																		
Premium NE-1	Portland Cement	Premium NE-1 is a portland cement with early compressive strength properties.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>Portland cement</td> <td>90 - 100</td> <td>65997-15-1</td> </tr> <tr> <td>Calcium oxide</td> <td>1 - 5</td> <td>1305-78-8</td> </tr> <tr> <td>Magnesium oxide</td> <td>1 - 5</td> <td>1309-48-4</td> </tr> <tr> <td>Crystalline silica: Quartz (SiO2)</td> <td>0.1 - 1</td> <td>14808-60-7</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	Portland cement	90 - 100	65997-15-1	Calcium oxide	1 - 5	1305-78-8	Magnesium oxide	1 - 5	1309-48-4	Crystalline silica: Quartz (SiO2)	0.1 - 1	14808-60-7			
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Bentonite	Extender	Commonly called gel, it is a clay material used as a cement extender and to control excessive free water.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>bentonite</td> <td>90 - 100</td> <td>1302-78-9</td> </tr> <tr> <td>Crystalline silica: Quartz (SiO2)</td> <td>5 - 10</td> <td>14808-60-7</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	bentonite	90 - 100	1302-78-9	Crystalline silica: Quartz (SiO2)	5 - 10	14808-60-7									
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Calcium Chloride	Accelerator	A powdered, flaked or pelletized material used to decrease thickening time and increase the rate of strength development.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>Calcium chloride</td> <td>90 - 100</td> <td>10043-52-4</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	Calcium chloride	90 - 100	10043-52-4												
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Cello Flake	Lost Circulation	Graded (3/8 to 3/4 inch) cellophane flakes used as a lost circulation material.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>No hazardous ingredient</td> <td></td> <td></td> </tr> </tbody> </table>	Ingredient name	%	CAS number	No hazardous ingredient														
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FP-13L	Foam Preventer	FP-13L is a clear liquid organic phosphate antifoaming agent used in cementing operations. It is very effective minimizing air entrapment and preventing foaming tendencies of latex systems.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>Tributyl phosphate</td> <td>90 - 100</td> <td>125-73-8</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	Tributyl phosphate	90 - 100	125-73-8												
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Granulated Sugar	Retarder	Used to retard cement returns at surface. A proprietary product that provides expansive properties and improves bonding at low to moderate temperatures.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>Sucrose</td> <td>90 - 100</td> <td>57-50-1</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	Sucrose	90 - 100	57-50-1												
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EC-1			<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>Calcium magnesium oxide</td> <td>90 - 100</td> <td>37247-91-9</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	Calcium magnesium oxide	90 - 100	37247-91-9												
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MPA-170	Gas Migration	Multi-purpose polymer additive used to control free fluid, fluid loss, rheology, and gas migration.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>No hazardous ingredient</td> <td></td> <td></td> </tr> </tbody> </table>	Ingredient name	%	CAS number	No hazardous ingredient														
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Poz (Fly Ash)	Base	A synthetic pozzolan, (primarily Silicon Dioxide). When blended with cement, Pozzolan can be used to create lightweight cement slurries used as either a filler slurry or a sulfate resistant completion cement.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>Crystalline silica: Quartz (SiO2)</td> <td>5 - 10</td> <td>14808-60-7</td> </tr> <tr> <td>Calcium oxide</td> <td>1 - 5</td> <td>1305-78-8</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	Crystalline silica: Quartz (SiO2)	5 - 10	14808-60-7	Calcium oxide	1 - 5	1305-78-8									
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R-3	Retarder	A low temperature retarder used in a wide range of slurry formulations to extend the slurry thickening time.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>Organic acid salt</td> <td>40 - 50</td> <td>Trade secret.</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	Organic acid salt	40 - 50	Trade secret.												
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S-5	Surfactant	Used to water wet casing and formation to facilitate cement bonding.	<table border="1"> <thead> <tr> <th>Ingredient name</th> <th>%</th> <th>CAS number</th> </tr> </thead> <tbody> <tr> <td>2-Butoxyethanol</td> <td>20 - 30</td> <td>111-76-2</td> </tr> <tr> <td>Proprietary surfactant</td> <td>10 - 20</td> <td>Trade secret.</td> </tr> <tr> <td>D-Glucopyranose, oligomeric, C10-16-alkyl glycosides</td> <td>5 - 10</td> <td>110515-47-9</td> </tr> <tr> <td>Alkylarylsulfonate amine salt</td> <td>1 - 5</td> <td>Trade secret.</td> </tr> <tr> <td>Polyoxyalkylenes</td> <td>0.1 - 1</td> <td>Trade secret.</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	2-Butoxyethanol	20 - 30	111-76-2	Proprietary surfactant	10 - 20	Trade secret.	D-Glucopyranose, oligomeric, C10-16-alkyl glycosides	5 - 10	110515-47-9	Alkylarylsulfonate amine salt	1 - 5	Trade secret.	Polyoxyalkylenes	0.1 - 1	Trade secret.
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SHL 27H
Macellus Shale Horizontal
Marshall County, WV

51-01988

Ground Elevation		SHL 27H SHL		SHL 27H LP		SHL 27H BHL		SHL 27H SHL		SHL 27H LP		SHL 27H BHL		SHL 27H SHL		SHL 27H LP		SHL 27H BHL				
Azim		1154'		338°		1154'		338°		1154'		338°		1154'		338°		1154'		338°		
WELLBORE DIAGRAM	HOLE	CASING	GEOLOGY	TOP	BASE	MUD	CEMENT	CENTRALIZERS	CONDITIONING	COMMENTS	WELLBORE DIAGRAM	HOLE	CASING	GEOLOGY	TOP	BASE	MUD	CEMENT	CENTRALIZERS	CONDITIONING	COMMENTS	
	30"	30" 157.5# LS	Conductor	0	40	AIR	N/A, Casing to be drilled in w/ Dual Rotary Rig	N/A	Ensure the hole is clean at TD.	Conductor casing = 0.5" well thickness		24"	20" 94# J-55	Fresh Water Water String	349 0	450	AIR	15.6 ppg PNE-1 + 2.5% bwoc CaCl + 0.25 lbs/sk Cello Flake + 0.75 gal/sk FP13L 30% Excess Yield = 1.20 / CTS	Centralized every 3 joints to surface	Once casing is at setting depth, circulate a minimum of one hole volume with Fresh Water prior to pumping cement.	Surface casing = 0.438" well thickness Burst=2110 psi	
	17.5"	13-3/8" 54.5# J-55 BTC	Pittsburgh Coal Int. Casing	634 0	644 1050	AIR / KCL - Salt Polymer	15.6 ppg PNE-1 + 2.5% bwoc CaCl + 0.25 lbs/sk Cello Flake + 0.75 gal/sk FP13L 30% Excess Yield=1.20 / CTS	Bow Spring on first 2 joints then every third joint to 100' form surface	Once casing is at setting depth, Circulate and condition at TD. Circulate a minimum of one hole volume prior to pumping cement.	Intermediate casing = 0.380" well thickness Burst=2730 psi												
	12.375" - 12.25"	9-5/8" 40# J-55 BTC	Big Lime Gordon Fifth Sand Int. Casing	1639 2639 2748 0	1719 2652 2782 3032	AIR / KCL - Salt Polymer	15.2 ppg PNE-1 + 2.5% bwoc CaCl + 0.25 lbs/sk Cello Flake + 0.75 gal/sk FP13L 30% Excess Yield=1.27 CTS	Bow Spring on first 2 joints then every third joint to 100' form surface	Once casing is at setting depth, Circulate and condition mud at TD. Circulate a minimum of one hole volume prior to pumping cement.	Casing to be ran 250' below the 5th Sand. Intermediate casing = 0.395" well thickness Burst=3950 psi		8.5" Vertical	5-1/2" 23# P-110 HC CDC HTQ	Warren Sand Java Shale Angolia Shale Rhinstreet Cashaqua Middlesex West River Burkett Tully Limestone Hamilton Marcellus	3604 4571 4799 5424 5630 5918 5951 5951 6006 6026 6053 6053 6166 6217	9.0ppg SOBIM	Run 1 spiral centralizer every 5 joints from the top of the curve to surface.	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 volume prior to pumping cement.	Production casing = 0.361" well thickness Burst=12640 psi Note: Actual centralizer schedules may be changed due to hole conditions			
	8.5" Curve	8.5" Curve CDC HTQ	Onondaga	6006 6026 6053 6166 6217	11.5ppg-12.5ppg SOBIM	11.5ppg-12.5ppg SOBIM	Lead: 14.5 ppg POZ:PNE-1 + 0.3% bwoc R3 + 1% bwoc EC1 + 0.75 gal/sk FP13L + 0.3% bwoc MPA170 Tail: 14.8 ppg PNE-1 + 0.35% bwoc R3 + 0.75 gal/sk FP13L + 50% bwoc ASCA1 + 0.5% bwoc MPA170 20% Excess Lead Yield=1.19 Tail Yield=1.94 CTS	Run 1 spiral centralizer every 3 joints from the 1st 5.5" long joint to the top of the curve.	Run 1 spiral centralizer every 3 joints from the top of the curve to surface.													
	8.5" Lateral		TMD / TVD Onondaga	15524 6217	6203	11.5ppg-12.5ppg SOBIM																

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LP @ 6203 TVD / 7226' MD
8.5" Hole - Cemented Long String
5-1/2" 23# P-110 HC CDC HTQ
+/-8298' ft Lateral
TD @ +/-6203' TVD
+/-15524' MD
X=Centralizers

HG Energy II Appalachia, LLC
List of Frac Additives by Chemical Name and CAS #

SHL27 HHS

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	

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

SI-01988

November 15, 2017

Consolidated Coal
Attn: Alex O'Neill
46226 National Road
St. Clairsville, OH 43950

RECEIVED
Office of Oil and Gas

NOV 30 2017

WV Department of
Environmental Protection

RE: Area of Review – SHL27 Well Pad – SHL27 AHS
Hydraulic Fracturing Notice

Dear Mr. O'Neill:

HG Energy II Appalachia, LLC, has developed a Marcellus pad (SHL27 pad) located in Marshall County, WV. As an owner or operator of a conventional natural gas well in this area, we are requesting your assistance in this matter.

Due to the apparent presence of unique geological conditions, the potential for communication between deep geologic zones exists in this area. This potential communication, via natural gas, water or both, may occur between hydraulically fractured wells in the Marcellus formation (approximately 6400' TVD) and existing conventional natural gas wells.

HG Energy anticipates conducting hydraulic fracturing of the SHL27 Pad during the third quarter of 2018. We have identified a conventional natural gas well operated by your company within 500' of one of the newly planned laterals (SHL27 AHS). A plat for the well is attached.

We recommend conventional well operators conduct the following activities before, during and after the fracturing operation.

1. Inspect surface equipment prior to fracturing to establish integrity and well conditions.
2. Observe wells closely during and after fracturing and monitor for abnormal increases in gas, water or pressure.
3. Inspect or install master valves rated at 3,000 psi or other necessary equipment for wellhead integrity.
4. Notify the OOG and HG Energy if any changes in water, gas production, pressure or other anomalies are identified.

Should you have any questions or desire further information, please contact me at 304-420-1119 or dwhite@hgenergyllc.com. You may also contact the WV Office of Oil and Gas at 304-926-044.

Sincerely,

Diane White

Diane White

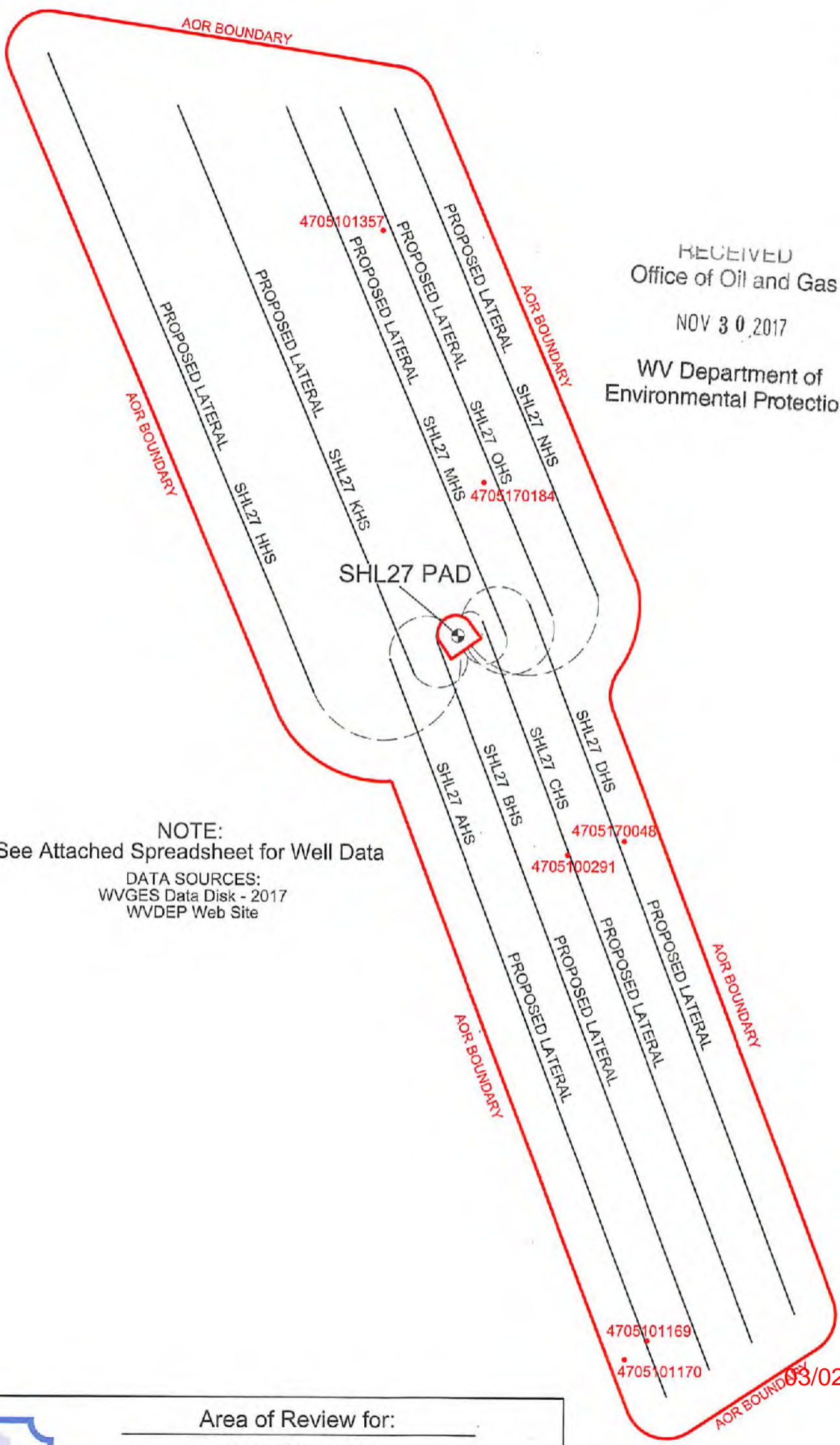
Enclosure

03/02/2018

51-01986



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NOTE:
See Attached Spreadsheet for Well Data
DATA SOURCES:
WVGES Data Disk - 2017
WVDEP Web Site

03/02/2018

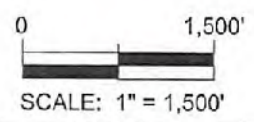


Area of Review for:

SHL27 PAD

- SHL27 AHS Wellbore
- SHL27 BHS Wellbore
- SHL27 CHS Wellbore
- SHL27 DHS Wellbore
- SHL27 HHS Wellbore
- SHL27 KHS Wellbore
- SHL27 MHS Wellbore
- SHL27 NHS Wellbore
- SHL27 OHS Wellbore

Webster District, Marshall County, W.Va.



11/13/2017

**EXISTING WELLS LOCATED WITHIN THE AREA OF REVIEW FOR:
SHL27 PAD AND PROPOSED WELLS AHS, BHS, CHS, DHS, HHS, KHS, MHS, NHS & OHS**

CT	API	COUNTY	FARM	OPERATOR NAME	FORMATION NAME	WELL TYPE	TVD	STATUS	LATITUDE	LONGITUDE
1	4705100291	MARSHALL	Wesley C Fisher No.4360	Columbia Natural Resources, LLC	Hampshire Grp	Observation	2,331	Plugged	39.951059	80.581027
2	4705101169	MARSHALL	Donna Russell & Craig Strope MC114	Consolidation Coal Company	Pittsburgh Coal	Horizontal CBM	1,010	Active	39.935204	80.577598
3	4705101170	MARSHALL	Donna Russell & Craig Strope MC114A	Consolidation Coal Company	Pittsburgh Coal	Horizontal CBM	1,133	Abandoned	39.934570	80.578576
4	4705101357	MARSHALL	Consol Land Development	Consolidation Coal Company	Berea	Gas Production	2,175	Plugged	39.971661	80.588953
5	4705170048	MARSHALL	William Dague No.1	South Penn Oil Company	Big Injun	Gas Production	1,385	Abandoned	39.951594	80.578578
6	4705170184	MARSHALL	W L Dague 1	UNKNOWN	Unknown	Unknown	NA	Abandoned	39.963390	80.584639
7										
8										
9										
10										

SOURCE: WVGES DATASET (2017) and WVDEP WEBSITE

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Environmental Protection

03/02/2018

WW-9
(4/16)

API Number 47 - 51 - 01988
Operator's Well No. SHL27 HHS

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) Wheeling Creek Quadrangle Majorsville

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:

- Land Application
- 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 _____)

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

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

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

Additives to be used in drilling medium? Water, soap, KCl, 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 waste rejected at any West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall also disclose where it was properly disposed.

I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION PERMIT issued on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I understand that the provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or other applicable law or regulation can lead to enforcement action.

I certify under penalty of law that I have personally examined and am familiar with the information submitted on this application form and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine or imprisonment.

Company Official Signature Diane White

Company Official (Typed Name) Diane White

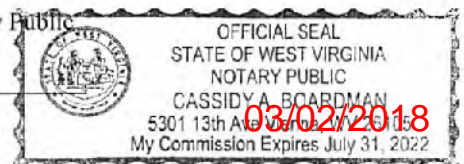
Company Official Title Accountant

Subscribed and sworn before me this 15th day of November, 2017

Cassidy A Boardman

My commission expires 7/31/2022

Notary Public



HG Energy II Appalachia, LLC

Proposed Revegetation Treatment: Acres Disturbed 19.325 Prevegetation pH 6.0

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20 or equal

Fertilizer amount 500 lbs/acre

Mulch Hay or Straw @ 2 Tons/acre

Seed Mixtures

Temporary		Permanent	
Seed Type	lbs/acre	Seed Type	lbs/acre
Tall Fescue	40	Tall Fescue	40
Ladino Clover	5	Ladino Clover	5

Pre-seed and mulch all cut area, maintain E&S standards during entire operation.

Attach:

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

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: *Jim Tschoban*

Comments: _____

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WV Department of
Environmental Protection

Title: Oil + Gas Inspector

Date: 11/20/17

Field Reviewed? () Yes () No

Cuttings Disposal/Site Water

Cuttings -Haul off Company:

Eap Industries, Inc. DOT # 0876278
1575 Smith Two State Rd. Atlasburg, PA 15004
1-888-294-5227

Waste Management
200 Rangos Lane
Washington, PA 15301
724-222-3272

Environmental Coordination Services & Recycling (ECS&R)
3237 US Highway 19
Cochranon, PA 16314
814-425-7773

Disposal Locations:

Apex Environnemental, LLC Permit # 06-08438
11 County Road 78
Amsterdam, OH 43903
740-543-4389

Westmoreland Waste, LLC Permit # 100277
111 Conner Lane
Belle Vernon, PA 15012
724-929-7694

Sycamore Landfill Inc, Permit #R30-079001 05-2010
4301 Sycamore Ridge Road
Hurricane, WV 25526
304-562-2611

Max Environnemental Technologies, Inc. Facility Permit # PAD004835146 / 301071
233 Max Lane
Yukon, PA 25968
724-722-3500

Max Environnemental Technologies, Inc. Facility Permit # PAD05087072 / 301359
200 Max Drive
Bulger, PA 15019
724-796-1571

Waste Management Kelly Run Permit # 100663
1901 Park Side Drive
Elizabeth, PA 15037
412-384-7569

Waste Management South Hills (Arnoni) Permit # 100592
3100 Hill Road
Library, PA 15129
724-348-7013
412-384-7569

Waste Management Arden Permit # 100172
200 Rangos Lane
Washington, PA 15301
724-222-3272

Waste Management Meadowfill Permit # 1032
1488 Dawson Drive
Bridgeport, WV 26330

Brooke County Landfill Permit # SWF-103-87 / WV 0109029
Rd 2 Box 410
Colliers, WV 26035
304-748-0014

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Wetzel County Landfill Permit # SWF-1021-97 / WV 0109185
Rt 1 Box 156A
New Martinsville, WV 26035
304-455-3800

Energy Solutions, LLC Permit # UT 2300249
423 West 300 South
Suite 200
Salt Lake City, UT 84101

Energy Solutions Services, Inc. Permit # R-73006-L24
1560 Bear Creek Road
Oak Ridge, TN 37830

Northern A-1 Environmental Services Permit ID MID020906814
3947 US 131 North, PO Box 1030
Kalkaska, MI 49646
231-258-9961

Water Haul off Companies:

Dynamic Structures, Clear Creek DOT # 720485
3790 State Route 7
New Waterford, OH 44445
330-892-0164

Nabors Completion & Production Services Co.
PO Box 975682
Dallas, TX 75397-5682

Select Energy Services, LLC
PO Box 203997
Dallas, TX 75320-3997

Nuverra Environmental Solutions
11942 Veterans Memorial Highway
Masontown, WV 26542

Mustang Oilfield Services LLC
PO Box 739
St. Clairsville, OH 43950

Wilson's Outdoor Services, LLC
456 Cracraft Road
Washington, PA 15301

Disposal Locations:

Solidification
Waste Management, Arden Landfill Permit # 100172
200 Rangos Lane
Washington, PA 15301
724-225-1589

Solidification/Incineration
Soil Remediation, Inc. Permit # 02-20753
6065 Arrel-Smith Road
Lowelville, OH 44436
330-536-6825

Adams #1 (Buckeye Brine, LLC)
Permit # 34-031-2-7177
23986 Airport Road
Coshocton, OH 43812
740-575-4484
512-478-6545

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CMS of Delaware Inc. DBA CMS Oilfield Serv
301 Commerce Drive
Moorestown, NJ 08057

Force, Inc.
1380 Rte. 286 Hwy. E, Suite 303
Indiana, PA 15701

Solo Construction
P.O. Box 544
St. Mary's, WV 26170

Equipment Transport
1 Tyler Court
Carlisle, PA 17015

Myers Well Service, -----
2001 Ballpark Court
Export, PA 15632

Burns Drilling & Excavating
618 Crabapple Road P.O. Box
Wind Ridge, PA 15380

Nichols 1-A (SWIW #13)
Permit # 3862
300 Cherrington Pkwy, Suite 200
Coraopolis, PA 15108
412-329-7275

Groselle (SWIW #34)
Permit # 4096
Rt. 88
Garrettsville, OH
713-275-4816

Kemble 1-D Well
Permit # 8780
7675 East Pike
Norwich, Oh 43767
614-648-8898
740-796-6495

03/02/2018

SI-01988

Adams #2 (Buckeye Brine, LLC)
2205 Westover Road
Austin Tx 78703
Permit # 34-031-2-7178
740-575-4484
512-478-6545

Adams #3 (Buckeye Brine, LLC)
Permit #34-031-2-7241-00-00
2630 Exposition, Suite 117
Austin, TX 78703
512-478-6545

Mozena #1 Well (SWIW # 13)
Permit # 34-157-2-5511-00-00
5367 E. State Street
Newcomerstown, OH 43832
740-763-3966

Goff SWD #1 (SWIW # 27)
Permit # 34-119-2-8776-000
300 Cherrington Pkwy, Suite 200
Coraopolis, PA 15108
412-329-7275

SOS D#1 (SWIW #12)
Permit # 34-059-2-4202-00-00
Silcor Oilfield Services, Inc.
2939 Hubbard Road
Youngstown, PH 44505

Dudley #1 UIC (SWIW #1)
Permit # 34-121-2-2459-00-00
Select Energy Services, LLC
7994 S. Pleasants Hwy
St. Marys, WV 26170
304-665-2652

OH UIC #1 Bu keye UIC Barnesville 1 & 2
CNX Gas Company, LLC
1000 Consol Energy Drive
Permit # 34-013-2-0609-00-00
Permit # 34-013-2-0614-00-00
304-323-6568

US Steele 1.1385
Permit # 47-001-00561
200 Evergreen Drive
Waynesburg, PA 15730
304-323-6568

Chapin #7 UIC (SWIW #7)
Permit # 34-083-2-4137-00-00
Elkhead Gas & Oil Company
12163 Marne Rd. NE
Newark, OH 43055
740-763-3966

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HG Energy II Appalachia, LLC

Site Safety Plan

**SHL 27 Well Pad
672 Irish Ridge Road
Cameron, WV**

July 2017: Version 2

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

*WV 8/14/2017
Juffee/17*

HG Energy II Appalachia, LLC

5260 Dupont Road

Parkersburg, WV 26101

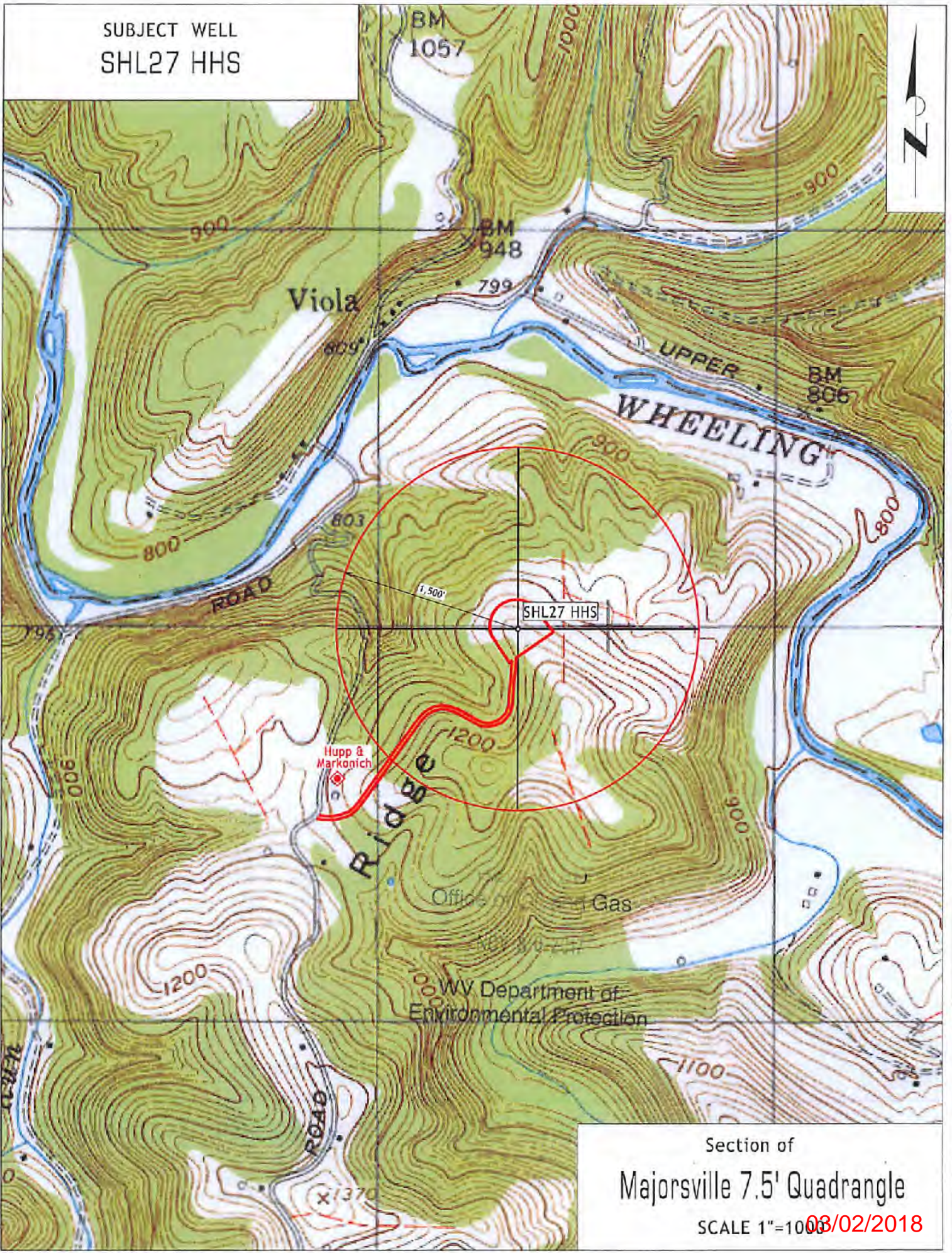
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Environmental Protection

03/02/2018

SUBJECT WELL
SHL27 HHS



Section of
Majorsville 7.5' Quadrangle
SCALE 1"=1000' 03/02/2018

Well is located on topo map 43 feet south of Latitude: 39° 57' 30"

Well is located on topo map 695 feet west of Longitude: 80° 35' 00"

SURFACE HOLE LOCATION (SHL)
 PAD CENTER EL. = 1153.60
 UTM 17 - NAD83
 N: 4423201.512
 E: 535376.070
 NAD27, WV NORTH
 N: 532934.298
 E: 1696563.971
 LAT/LON DATUM - NAD83
 LAT: 39.958214
 LON: -80.585818

APPROX. LANDING POINT
 UTM 17 - NAD83
 N: 4423007.807
 E: 534852.541
 NAD27, WV NORTH
 N: 532327.414
 E: 1693835.443
 LAT/LON DATUM - NAD83
 LAT: 39.956490
 LON: -80.591957

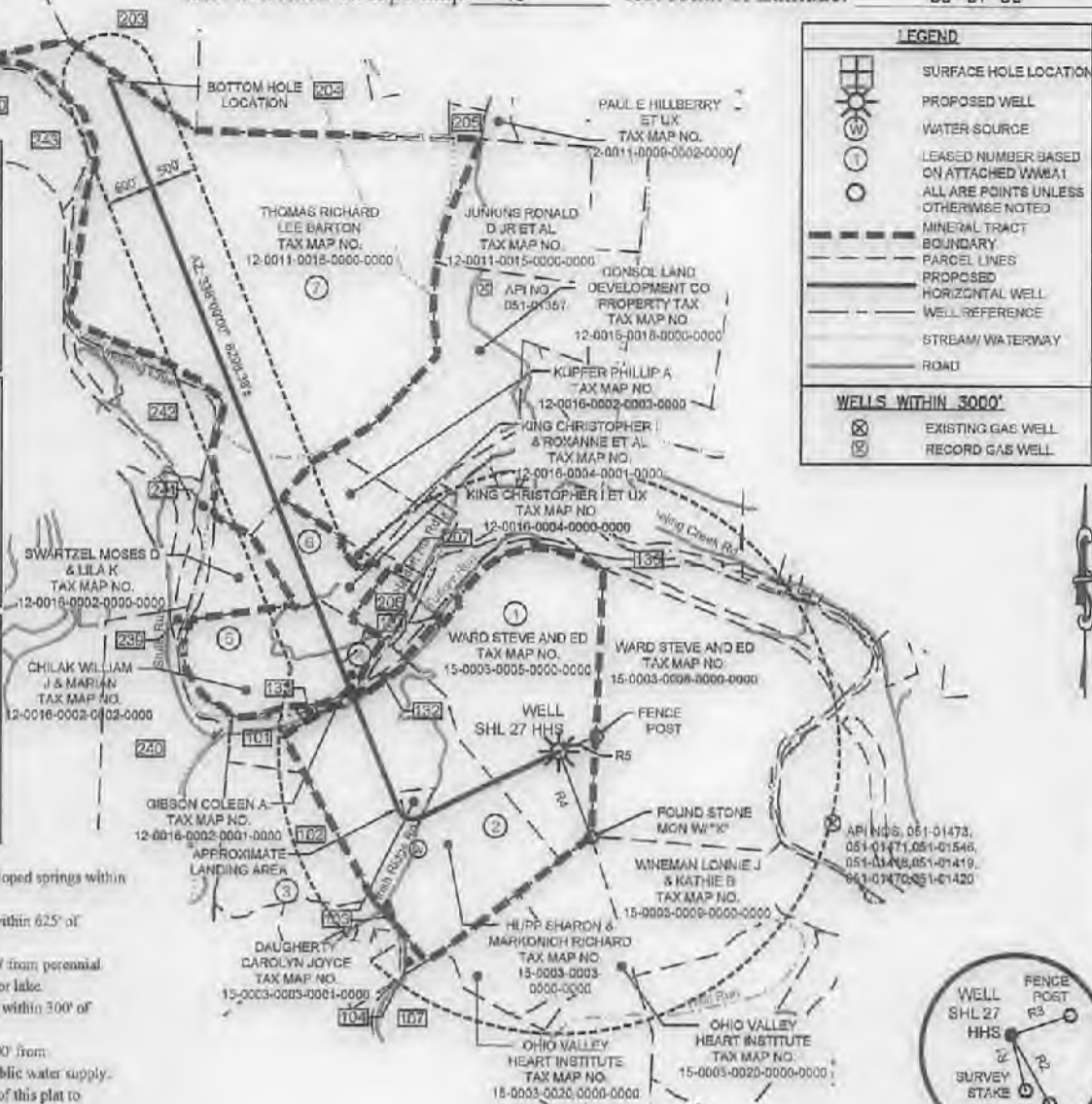
BOTTOM HOLE LOCATION
 UTM 17 - NAD83
 N: 4425358.002
 E: 533866.273
 NAD27, WV NORTH
 N: 540021.642
 E: 1690726.771
 LAT/LON DATUM - NAD83
 LAT: 39.977507
 LON: -80.603383

- NOTES:**
- There are no water wells or developed springs within 250' of proposed well.
 - There are no existing buildings within 625' of proposed well.
 - Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
 - There are no native trout streams within 300' of 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 represent surveyed locations of the surface or mineral parcels depicted hereon. The location of the boundary lines, as shown, and based on record deed descriptions, field evidence found and/or tax map position, unless otherwise noted.

Wellhead Capable Park (W.C. State St)
 2010 Government Plaza
 Sewey, VA 24302



Civil Engineering | Land Reclamation | Structure Design
 Land Planning | Landscape Architecture | Environmental



LEGEND

- SURFACE HOLE LOCATION
- PROPOSED WELL
- WATER SOURCE
- LEASED NUMBER BASED ON ATTACHED WMB#1
- ALL ARE POINTS UNLESS OTHERWISE NOTED
- MINERAL TRACT BOUNDARY
- PARCEL LINES
- PROPOSED HORIZONTAL WELL
- WELL REFERENCE
- STREAM/WATERWAY
- ROAD

WELLS WITHIN 3000'

- EXISTING GAS WELL
- RECORD GAS WELL



REFERENCE DETAIL

LINE	BEARING	DISTANCE
R1	N14°23'32"W	305.00'
R2	N29°55'38"W	420.64'
R3	S71°25'58"W	331.12'
R4	N20°40'22"W	977.40'
R5	S87°25'23"W	427.50'

FILE #: SHL 27 HHS
 DRAWING #: SHL 27 HHS
 SCALE: 1"=2000'
 MINIMUM DEGREE OF ACCURACY: 1/2500
 PROVEN SOURCE USGS MONUMENT OF ELEVATION: U 124: 961.16'

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 REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

SIGNED: *[Signature]*
 R.P.E.: 18786 L.L.S.: P.S. NO.



(+) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25304

Well Type: Oil Waste Disposal Production Deep Gas Liquid Injection Storage Shallow

WATERSHED: WHEELING CREEK ELEVATION: 1,153.60'
 COUNTY/DISTRICT: MARSHALL / WEBSTER QUADRANGLE: MAJORSVILLE, W. VA
 SURFACE OWNER: STEVE WARD AND ED WARD ACREAGE: 122.47
 OIL & GAS ROYALTY OWNER: BOUNTY MINERALS, LLC ACREAGE: 122.47

DATE: NOVEMBER 18, 2014 - REV. JULY 20, 2017
 OPERATOR'S WELL #: SHL 27 HHS
 API WELL # 47 051 01988
 STATE COUNTY PERMIT
 HGA

DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE
 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG AND ABANDON
 CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY)

TARGET FORMATION: MARCELLUS ESTIMATED DEPTH: TVD: 6,203' ± TMD: 15,525' ±
 WELL OPERATOR: HG ENERGY II APPALACHIA, LLC DESIGNATED AGENT: DIANE C. WHITE
 Address: 5260 DUPONT ROAD Address: 5260 DUPONT ROAD
 City PARKERSBURG State WV Zip Code 26101 City PARKERSBURG State WV Zip Code 26101

03/02/2018

Bottom hole is located on topo map 8196 feet south of Latitude: 40° 00' 00"

Bottom hole is located on topo map 5622 feet west of Longitude: 80° 35' 00"

LEGEND

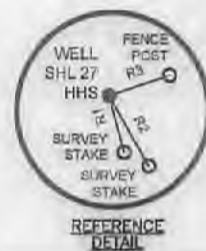
- SURFACE HOLE LOCATION
- PROPOSED WELL
- WATER SOURCE
- LEASED NUMBER BASED ON ATTACHED WWBA1 ALL ARE POINTS UNLESS OTHERWISE NOTED
- MINERAL TRACT BOUNDARY
- PARCEL LINES
- PROPOSED HORIZONTAL WELL
- WELL REFERENCE
- STREAM/WATERWAY
- ROAD
- BOTTOM HOLE LOCATION

WELLS WITHIN 3000'

- EXISTING GAS WELL
- RECORD GAS WELL

- NOTES:**
- There are no water wells or developed springs within 250' of proposed well.
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1301	JAGA, INC.	TAX MAP NO. 15-0003-0001-0000-0000
130	JONES EVELINE J	TAX MAP NO. 15-0003-0005-0000-0000
131	GRAY GEORGE K & BONNIE J NORTH	TAX MAP NO. 15-0005-0005-0001-0000
132	KELLER ROBERT LEE & MARY KAY	TAX MAP NO. 15-0005-0005-0002-0000
133	PARKER PETER	TAX MAP NO. 15-0005-0004-0000-0000
200	HICKEY GLENN M	TAX MAP NO. 15-0001-0008-0001-0000
201	HICKEY GLENN M	TAX MAP NO. 12-0010-0005-0000-0000
202	TOLAND DOROTHY J WINNER SANDRA J	TAX MAP NO. 12-0011-0003-0000-0000
203	MILLER DOROTHY T ET AL	TAX MAP NO. 12-0011-0004-0000-0000
204	GRAY DONALD G & DAVID G	TAX MAP NO. 12-0011-0009-0000-0000
205	HILBERRY PAUL E JR.	TAX MAP NO. 12-0011-0009-0003-0000
206	GIBSON COLEEN A	TAX MAP NO. 12-0016-0005-0000-0000
207	TERRY JOHN G II	TAX MAP NO. 12-0019-0007-0000-0000
208	EMMA FRYE	TAX MAP NO. 15-0002-0003-0001-0000
240	SARA JO ANDERSON	TAX MAP NO. 15-0002-0004-0000-0000
241	ISKCON - NEW MATHURA VRINDABAN	TAX MAP NO. 15-0001-0015-0000-0000
242	ISKCON - NEW MATHURA VRINDABAN	TAX MAP NO. 15-0001-0012-0000-0000
243	ISKCON - NEW MATHURA VRINDABAN	TAX MAP NO. 15-0001-0008-0000-0000



LINE TABLE

LINE	BEARING	DISTANCE
R1	N14°23'32"W	305.09'
R2	N28°55'38"W	420.84'
R3	S71°25'58"W	331.12'
R4	N20°40'22"W	977.40'
R5	S67°25'23"W	427.50'

PVE ENGINEERING

Civil Engineering | Land Development | Structure Design
 Land Planning | Landscape Architecture | Environmental

FILE #: SHL 27 HHS

DRAWING #: SHL 27 HHS

SCALE: 1"=2000'

MINIMUM DEGREE OF ACCURACY: 1/2500

PROVEN SOURCE OF ELEVATION: USGS MONUMENT U 124: 951.18'

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 REGULATIONS ISSUED AND PRESCRIBED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

SIGNED: [Signature]

R.P.E.: 18766 L.L.S.: P.S. NO. _____

PLACE SEAL HERE

(-) DENOTES LOCATION OF WELL ON UNITED STATES TOPOGRAPHIC MAPS WVDEP OFFICE OF OIL & GAS 601 57TH STREET CHARLESTON, WV 25304

WATERSHED: WHEELING CREEK

COUNTY/DISTRICT: MARSHALL / WEBSTER

SURFACE OWNER: STEVE WARD AND ED WARD

OIL & GAS ROYALTY OWNER: BOUNTY MINERALS, LLC

WELL OPERATOR: HG ENERGY II APPALACHIA, LLC

Address: 5260 DUPONT ROAD

City PARKERSBURG State WV Zip Code 26101

DATE: NOVEMBER 16, 2014 - REV. JULY 20, 2017

OPERATOR'S WELL #: SHL 27 HHS

API WELL # 47 051 01988

STATE COUNTY PERMIT

Well Type: Oil Waste Disposal Production Deep Gas Liquid Injection Storage Shallow

ELEVATION: 1,153.60'

QUADRANGLE: MAJORSVILLE, W. VA

ACREAGE: 122.47

ACREAGE: 122.47

DRILL CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMULATE PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG AND ABANDON CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY)

ESTIMATED DEPTH: TVD: 6,203' ± TMD: 15,525' ±

DESIGNATED AGENT: DIANE G. WHITE

Address: 5260 DUPONT ROAD

City PARKERSBURG State WV Zip Code 26101

SHEET: 2 OF 2

03/02/2018

WW-6A1
(5/13)

Operator's Well No. SHL27 HHS

**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 Information **

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**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
SHL27 HHS Lease Chains

TAX MAP	LEASE NUMBER	GRANTOR/LESSOR	GRANTEE/LESSEE	ROYALTY	DEED BK	PAGE		
15-3-5	Q086779000	AMERICAN PREMIER UNDERWRITERS INC	TRIENERGY HOLDINGS LLC	NOT LESS THAN 1/8	709	67		
		AMERICAN PREMIER UNDERWRITERS INC	TRIENERGY HOLDINGS LLC		731	36		
		TRIENERGY HOLDINGS LLC	CHEVERON U.S.A. INC.		28	356		
		CHEVERON U.S.A. INC.	STATOIL USA ONSHORE PROPERTIES INC.		30	494		
		CHEVERON U.S.A. INC.	CHESSAPEAKE APPALACHIA LLC		30	532		
		CHESSAPEAKE APPALACHIA LLC AND STATOIL USA ONSHORE PROPERTIES INC.	NOBLE ENERGY INC AND CNX GAS COMPANY LLC		32	526		
		BOUNTY MINERALS LLC	NOBLE ENERGY INC AND CNX GAS COMPANY LLC		879	249		
		CNX GAS COMPANY LLC	NOBLE ENERGY INC		37	169		
		NOBLE ENERGY INC	HG ENERGY II APPALACHIA, LLC		39	1		
		BOUNTY MINERALS LLC	HG ENERGY II APPALACHIA, LLC		935	457		
		RECEIVED Office of Oil and Gas NOV 30 2017 WV Department of Environmental Protection	Q086691003 THROUGH Q086691016	MARILYN IZZI	CHESSAPEAKE APPALACHIA LLC	NOT LESS THAN 1/8	801	212
				MICHAEL LIVINGSTON ET UX	CHESSAPEAKE APPALACHIA LLC	NOT LESS THAN 1/8	810	9
				CLYDE S OLK JR	CHESSAPEAKE APPALACHIA LLC	NOT LESS THAN 1/8	812	398
				KAROLE ANN STRACHAN ET VIR	CHESSAPEAKE APPALACHIA LLC	NOT LESS THAN 1/8	806	493
PATRICIA APRIL FISHER	CHESSAPEAKE APPALACHIA LLC			NOT LESS THAN 1/8	812	404		
LINDA MARIE OLK	CHESSAPEAKE APPALACHIA LLC			NOT LESS THAN 1/8	822	581		
PAUL D LIVINGSTON ET UX	CHESSAPEAKE APPALACHIA LLC			NOT LESS THAN 1/8	808	568		
JERRY B LIVINGSTON-JOY ET UX	CHESSAPEAKE APPALACHIA LLC			NOT LESS THAN 1/8	808	575		
SUSAN E LIVINGSTON BARKER ET VIR	CHESSAPEAKE APPALACHIA LLC			NOT LESS THAN 1/8	802	219		
JUDITH ANNE CRITES ET VIR	CHESSAPEAKE APPALACHIA LLC			NOT LESS THAN 1/8	802	213		

<p>RECEIVED Office of Oil and Gas</p> <p>NOV 30 2017</p> <p>WV Department of Environmental Protection</p>	<p>12-16-2.1</p> <p>Q095557000</p>	<p>THEODORE F LIVINGSTON ET UX</p> <p>CHESAPEAKE APPALACHIA LLC</p>	<p>NOT LESS THAN 1/8</p>	806	481
		<p>RANDAL G LIVINGSTON</p> <p>CHESAPEAKE APPALACHIA LLC</p>	<p>NOT LESS THAN 1/8</p>	806	487
		<p>GARY LIVINGSTON ET UX</p> <p>CHESAPEAKE APPALACHIA LLC</p>	<p>NOT LESS THAN 1/8</p>	806	475
		<p>GEORGE E LIVINGSTON ET UX</p> <p>CHESAPEAKE APPALACHIA LLC</p>	<p>NOT LESS THAN 1/8</p>	801	206
		<p>CHESAPEAKE APPALACHIA LLC AND STATOIL USA ONSHORE PROPERTIES INC.</p>	<p>NOT LESS THAN 1/8</p>	801	206
		<p>CNX GAS COMPANY LLC</p> <p>NOBLE ENERGY INC AND CNX GAS COMPANY LLC</p>	<p>32</p> <p>37</p>	526	169
		<p>NOBLE ENERGY INC</p>	<p>39</p>	39	1
		<p>COLEEN A GIBSON</p> <p>FOSSIL CREEK OHIO LLC</p>	<p>821</p> <p>31</p>	167	585
		<p>FOSSIL CREEK OHIO LLC</p> <p>GULFPORT ENERGY CORPORATION</p>	<p>32</p>	307	
		<p>NOBLE ENERGY INC</p> <p>HG ENERGY II APPALACHIA, LLC</p>	<p>34</p> <p>39</p> <p>940</p>	498	1
<p>12-16-2.2</p> <p>Q095559000</p>	<p>MARIAN MURPHY</p> <p>FOSSIL CREEK OHIO LLC</p>	<p>NOT LESS THAN 1/8</p>	833	245	
	<p>FOSSIL CREEK OHIO LLC</p> <p>GULFPORT ENERGY CORPORATION</p>	<p>NOT LESS THAN 1/8</p>	31	585	
	<p>FOSSIL CREEK OHIO LLC</p> <p>GULFPORT ENERGY CORPORATION AND FOSSIL CREEK OHIO LLC</p>	<p>NOT LESS THAN 1/8</p>	32	307	
	<p>NOBLE ENERGY INC</p> <p>HG ENERGY II APPALACHIA, LLC</p>	<p>34</p> <p>39</p> <p>940</p>	498	1	
	<p>JAIRO BORRERO MONEDERO ET UX</p> <p>FOSSIL CREEK OHIO LLC</p>	<p>828</p> <p>31</p>	143	585	
	<p>FOSSIL CREEK OHIO LLC</p> <p>GULFPORT ENERGY CORPORATION AND FOSSIL CREEK OHIO LLC</p>	<p>32</p>	307		
	<p>NOBLE ENERGY INC</p> <p>HG ENERGY II APPALACHIA, LLC</p>	<p>34</p> <p>39</p> <p>940</p>	498	1	
	<p>FOSSIL CREEK OHIO LLC</p> <p>IRONHEAD RESOURCES, LLC</p>	<p>NOT LESS THAN 1/8</p>	828	143	
	<p>FOSSIL CREEK OHIO LLC</p> <p>GULFPORT ENERGY CORPORATION</p>	<p>NOT LESS THAN 1/8</p>	31	585	
	<p>NOBLE ENERGY INC</p> <p>HG ENERGY II APPALACHIA, LLC</p>	<p>34</p> <p>39</p> <p>940</p>	498	1	
<p>12-16-4.2</p> <p>Q095554000</p>	<p>JAIRO BORRERO MONEDERO ET UX</p> <p>FOSSIL CREEK OHIO LLC</p>	<p>NOT LESS THAN 1/8</p>	828	143	
	<p>FOSSIL CREEK OHIO LLC</p> <p>GULFPORT ENERGY CORPORATION AND FOSSIL CREEK OHIO LLC</p>	<p>NOT LESS THAN 1/8</p>	31	585	
	<p>NOBLE ENERGY INC</p> <p>HG ENERGY II APPALACHIA, LLC</p>	<p>34</p> <p>39</p> <p>940</p>	498	1	
	<p>FOSSIL CREEK OHIO LLC</p> <p>IRONHEAD RESOURCES, LLC</p>	<p>NOT LESS THAN 1/8</p>	828	143	
	<p>FOSSIL CREEK OHIO LLC</p> <p>GULFPORT ENERGY CORPORATION</p>	<p>NOT LESS THAN 1/8</p>	31	585	
	<p>NOBLE ENERGY INC</p> <p>HG ENERGY II APPALACHIA, LLC</p>	<p>34</p> <p>39</p> <p>940</p>	498	1	
	<p>FOSSIL CREEK OHIO LLC</p> <p>IRONHEAD RESOURCES, LLC</p>	<p>NOT LESS THAN 1/8</p>	828	143	
	<p>FOSSIL CREEK OHIO LLC</p> <p>GULFPORT ENERGY CORPORATION</p>	<p>NOT LESS THAN 1/8</p>	31	585	
	<p>NOBLE ENERGY INC</p> <p>HG ENERGY II APPALACHIA, LLC</p>	<p>34</p> <p>39</p> <p>940</p>	498	1	
	<p>CHRISTOPHER I KING ET UX</p> <p>FOSSIL CREEK OHIO LLC</p>	<p>NOT LESS THAN 1/8</p>	821	169	

12-16-4.0	Q095555000	FOSSIL CREEK OHIO LLC FOSSIL CREEK OHIO LLC GULFPORT ENERGY CORPERATION AND FOSSIL CREEK OHIO LLC NOBLE ENERGY INC	IRONHEAD RESOURCES, LLC GULFPORT ENERGY CORPERATION NOBLE ENERGY INC HG ENERGY II APPALACHIA, LLC	31 32 34 39	585 192 498 1
12-11-16.00	Q086883000	RICHARD LEE BARTON THOMAS NOBLE ENERGY INC	NOBLE ENERGY INC HG ENERGY II APPALACHIA, LLC	842 39	22 1

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Environmental Protection



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

47 05 10 19 88

November 13, 2017

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

RE: Drilling Under Roads - SHL27 HHS
Webster District, Marshall 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 dwhite@hgeneryllc.com or 304-420-1119.

Very truly yours,

Diane White

Diane C. White

Enclosures

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WV Department of
Environmental Protection

03/02/2018

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

Date of Notice Certification: 11/15/2017

API No. 47- _____ - _____
Operator's Well No. SHL27 HHS
Well Pad Name: SHL27

Notice has been given:

Pursuant to the provisions in West Virginia Code § 22-6A, the Operator has provided the required parties with the Notice Forms listed below for the tract of land as follows:

State: <u>West Virginia</u>	UTM NAD 83 Easting: <u>535376.070</u>
County: <u>Marshall</u>	Northing: <u>4423201.512</u>
District: <u>Webster</u>	Public Road Access: <u>Irish Ridge Road</u>
Quadrangle: <u>Majorsville</u>	Generally used farm name: <u>Steve and Ed Ward</u>
Watershed: <u>Wheeling Creek</u>	

Pursuant to West Virginia Code § 22-6A-7(b), every permit application filed under this section shall be on a form as may be prescribed by the secretary, shall be verified and shall contain the following information: (14) A certification from the operator that (i) it has provided the owners of the surface described in subdivisions (1), (2) and (4), subsection (b), section ten of this article, the information required by subsections (b) and (c), section sixteen of this article; (ii) that the requirement was deemed satisfied as a result of giving the surface owner notice of entry to survey pursuant to subsection (a), section ten of this article six-a; or (iii) the notice requirements of subsection (b), section sixteen of this article were waived in writing by the surface owner; and Pursuant to West Virginia Code § 22-6A-11(b), the applicant shall tender proof of and certify to the secretary that the notice requirements of section ten of this article have been completed by the applicant.

Pursuant to West Virginia Code § 22-6A, the Operator has attached proof to this Notice Certification that the Operator has properly served the required parties with the following: *PLEASE CHECK ALL THAT APPLY		OOG OFFICE USE ONLY
<input type="checkbox"/> 1. NOTICE OF SEISMIC ACTIVITY or <input checked="" type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NO SEISMIC ACTIVITY WAS CONDUCTED		<input type="checkbox"/> RECEIVED/ NOT REQUIRED
<input type="checkbox"/> 2. NOTICE OF ENTRY FOR PLAT SURVEY or <input checked="" type="checkbox"/> NO PLAT SURVEY WAS CONDUCTED		<input type="checkbox"/> RECEIVED
<input checked="" type="checkbox"/> 3. NOTICE OF INTENT TO DRILL or <input type="checkbox"/> NOTICE NOT REQUIRED BECAUSE NOTICE OF ENTRY FOR PLAT SURVEY WAS CONDUCTED or <input checked="" type="checkbox"/> WRITTEN WAIVER BY SURFACE OWNER (PLEASE ATTACH)		<input type="checkbox"/> RECEIVED/ NOT REQUIRED
<input checked="" type="checkbox"/> 4. NOTICE OF PLANNED OPERATION	RECEIVED Office of Oil and Gas	<input type="checkbox"/> RECEIVED
<input checked="" type="checkbox"/> 5. PUBLIC NOTICE	NOV 30 2017	<input type="checkbox"/> RECEIVED
<input checked="" type="checkbox"/> 6. NOTICE OF APPLICATION		<input type="checkbox"/> RECEIVED

WV Department of
Environmental Protection

Required Attachments:

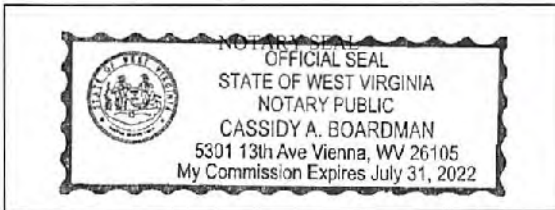
The Operator shall attach to this Notice Certification Form all Notice Forms and Certifications of Notice that have been provided to the required parties and/or any associated written waivers. For the Public Notice, the operator shall attach a copy of the Class II Legal Advertisement with publication 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.

WW-6AC
(1/12)

Certification of Notice is hereby given:

THEREFORE, I Diane White, have read and understand the notice requirements within West Virginia Code § 22-6A. I certify that as required under West Virginia Code § 22-6A, I have served the attached copies of the Notice Forms, identified above, to the required parties through personal service, by registered mail or by any method of delivery that requires a receipt or signature confirmation. I certify under penalty of law that I have personally examined and am familiar with the information submitted in this Notice Certification and all attachments, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Well Operator:	<u>HG Energy II Appalachia, LLC</u>	Address:	<u>5260 Dupont Road</u>
By:	<u>Diane White <i>Diane White</i></u>		<u>Parkersburg, WV 26101</u>
Its:	<u>Agent</u>	Facsimile:	<u>304-863-3172</u>
Telephone:	<u>304-420-1119</u>	Email:	<u>dwhite@hgenergyllc.com</u>



Subscribed and sworn before me this 15th day of November, 2017.

Cassidy A. Boardman Notary Public

My Commission Expires 7/31/2022

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 deprivacyofficer@wv.gov.

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Environmental Protection

03/02/2018

**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 than the **filing date of permit application.**

Date of Notice: 11/15/17 **Date Permit Application Filed:** 11/17/2017

Notice of:

- PERMIT FOR ANY WELL WORK
- CERTIFICATE OF APPROVAL FOR THE CONSTRUCTION OF AN IMPOUNDMENT OR PIT

Delivery method pursuant to West Virginia Code § 22-6A-10(b)

- PERSONAL SERVICE
- REGISTERED MAIL
- METHOD OF DELIVERY THAT REQUIRES A RECEIPT OR SIGNATURE CONFIRMATION

Pursuant to W. Va. Code § 22-6A-10(b) no later than the filing date of the application, the applicant for a permit for any well work or for a certificate of approval for the construction of an impoundment or pit as required by this article shall deliver, by personal service or by registered mail or by any method of delivery that requires a receipt or signature confirmation, copies of the application, the erosion and sediment control plan required by section seven of this article, and the well plat to each of the following persons: (1) The owners of record of the surface of the tract on which the well is or is proposed to be located; (2) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for roads or other land disturbance as described in the erosion and sediment control plan submitted pursuant to subsection (c), section seven of this article; (3) The coal owner, operator or lessee, in the event the tract of land on which the well proposed to be drilled is located [sic] is known to be underlain by one or more coal seams; (4) The owners of record of the surface tract or tracts overlying the oil and gas leasehold being developed by the proposed well work, if the surface tract is to be used for the placement, construction, enlargement, alteration, repair, removal or abandonment of any impoundment or pit as described in section nine of this article; (5) Any surface owner or water purveyor who is known to the applicant to have a water well, spring or water supply source located within one thousand five hundred feet of the center of the well pad which is used to provide water for consumption by humans or domestic animals; and (6) The operator of any natural gas storage field within which the proposed well work activity is to take place. (c)(1) If more than three tenants in common or other co-owners of interests described in subsection (b) of this section hold interests in the lands, the applicant may serve the documents required upon the person described in the records of the sheriff required to be maintained pursuant to section eight, article one, chapter eleven-a of this code. (2) Notwithstanding any provision of this article to the contrary, notice to a lien holder is not notice to a landowner, unless the lien holder is the landowner. W. Va. Code R. § 35-8-5.7.a requires, in part, that the operator shall also provide the Well Site Safety Plan ("WSSP") to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Application Notice WSSP Notice E&S Plan Notice Well Plat Notice is hereby provided to:

SURFACE OWNER(s)
 Name: Steve and Ed Ward
 Address: 50 California Street
Farmersville, OH 45325
 Name: _____
 Address: _____

SURFACE OWNER(s) (Road and/or Other Disturbance)
 Name: Richard Markonich and Sharon Hupp
 Address: 614 Irish Ridge Road
Cameron, WV 26033
 Name: _____
 Address: _____

SURFACE OWNER(s) (Impoundments or Pits)
 Name: _____
 Address: _____

COAL OWNER OR LESSEE
 Name: Consolidation Coal Company (Murray Energy) Attn: Alex O'Neill
 Address: 45226 National Road
St. Clairsville, OH 43950

COAL OPERATOR
 Name: Same as Above
 Address: _____

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)
 Name: None within 1500'
 Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD
 Name: None
 Address: _____

*Please attach additional forms if necessary

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 WV Department of Environmental Protection

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(8-13)

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Office of Oil and Gas

API NO. 47- _____ - _____
OPERATOR WELL NO. SHL27 HHS
Well Pad Name: SHL27

NOV 30 2017

Notice is hereby given:

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 a horizontal well 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 erosion 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 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.

Pursuant to W. Va. Code R. § 35-8-5.7.a, the operator shall provide the Well Site Safety Plan to the surface owner and any water purveyor or surface owner subject to notice and water testing as provided in section 15 of this rule.

Pursuant to W. Va. Code R. § 35-8-15.2.c, this notice shall: (1) contain a statement of the surface owner's and water purveyor's right to request sampling and analysis; (2) advise the surface owner and water purveyor of the rebuttable presumption for contamination or deprivation of a fresh water source or supply; advise the surface owner and water purveyor that refusal to allow the operator to conduct a pre-drilling water well test constitutes a method to rebut the presumption of liability; (3) advise the surface owner and water purveyor of his or her independent right to sample and analyze any water supply at his or her own expense; advise the surface owner and water purveyor whether or not the operator will utilize an independent laboratory to analyze any sample; and (4) advise the surface owner and or water purveyor that he or she can obtain from the Chief a list of water testing laboratories in the subject area capable of and qualified to test water supplies in accordance with standard acceptable methods.

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

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 well pad 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

WW-6A
(8-13)

API NO. 47- _____
OPERATOR WELL NO. SHL27 HHS
Well Pad Name: SHL27

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 factors, if necessary.

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. The operator shall provide an analysis to such surface landowner or water purveyor at their request.

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. A surface owner and water purveyor has an independent right to sample and analyze any water supply at his or her own expense. The laboratory utilized by the operator shall be approved by the agency as being certified and capable of performing sample analyses in accordance with this section.

Rebuttable Presumption for Contamination or Deprivation of a Fresh Water Source or Supply:

W. Va. Code § 22-6A-18 requires that (b) unless rebutted by one of the defenses established in subsection (c) of this section, in any action for contamination or deprivation of a fresh water source or supply within one thousand five hundred feet of the center of the well pad for horizontal well, there is a rebuttable presumption that the drilling and the oil or gas well or either was the proximate cause of the contamination or deprivation of the fresh water source or supply. (c) In order to rebut the presumption of liability established in subsection (b) of this section, the operator must prove by a preponderance of the evidence one of the following defenses: (1) The pollution existed prior to the drilling or alteration activity as determined by a predrilling or prealteration water well test. (2) The landowner or water purveyor refused to allow the operator access to the property to conduct a predrilling or prealteration water well test. (3) The water supply is not within one thousand five hundred feet of the well. (4) The pollution occurred more than six months after completion of drilling or alteration activities. (5) The pollution occurred as the result of some cause other than the drilling or alteration activity. (d) Any operator electing to preserve its defenses under subdivision (1), subsection (c) of this section shall retain the services of an independent certified laboratory to conduct the predrilling or prealteration water well test. A copy of the results of the test shall be submitted to the department and the surface owner or water purveyor in a manner prescribed by the secretary. (e) Any operator shall replace the water supply of an owner of interest in real property who obtains all or part of that owner's supply of water for domestic, agricultural, industrial or other legitimate use from an underground or surface source with a comparable water supply where the secretary determines that the water supply has been affected by contamination, diminution or interruption proximately caused by the oil or gas operation, unless waived in writing by that owner. (f) The secretary may order the operator conducting the oil or gas operation to: (1) Provide an emergency drinking water supply within twenty-four hours; (2) Provide temporary water supply within seventy-two hours; (3) Within thirty days begin activities to establish a permanent water supply or submit a proposal to the secretary outlining the measures and timetables to be used in establishing a permanent supply. The total time in providing a permanent water supply may not exceed two years. If the operator demonstrates that providing a permanent replacement water supply cannot be completed within two years, the secretary may extend the time frame on case-by-case basis; and (4) Pay all reasonable costs incurred by the real property owner in securing a water supply. (g) A person as described in subsection (b) of this section aggrieved under the provisions of subsections (b), (e) or (f) of this section may seek relief in court... (i) Notwithstanding the denial of the operator of responsibility for the damage to the real property owner's water supply or the status of any appeal on determination of liability for the damage to the real property owner's water supply, the operator may not discontinue providing the required water service until authorized to do so by the secretary or a court of competent jurisdiction.

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 57th St. SE
Charleston, WV 25304
(304) 926-0450

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Environmental Protection

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.**

03/02/2018

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 <http://www.dep.wv.gov/oil-and-gas/Horizontal-Permits/Pages/default.aspx> 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 issuance if the 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.

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.

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Environmental Protection

WW-6A
(8-13)

4705101988

API NO. 47- _____
OPERATOR WELL NO. SHL27 HHS
Well Pad Name: SHL27

Notice is hereby given by:

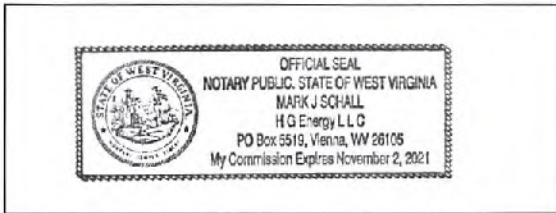
Well Operator: HG Energy II Appalachia, LLC
Telephone: 304-420-1119
Email: dwhite@hgenergyllc.com

Address: 5260 Dupont Road
Parkersburg, WV 26101
Facsimile: 304-863-3172

Diane White

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.



Subscribed and sworn before me this 15th day of November, 2017.

[Signature] Notary Public

My Commission Expires 11/2/2021

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WV Department of
Environmental Protection

03/02/2018

WW-6A4
(1/12)

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

Pursuant to W. Va. Code § 22-6A-16(b), the Notice of Intent to Drill is only required if the notice requirements of W. Va. Code § 22-6A-10(a) have NOT been met or if the Notice of Intent to Drill requirement has NOT been waived in writing by the surface owner.

Notice Time Requirement: Notice shall be provided at least **TEN (10)** days prior to filing a permit application.

Date of Notice: 11/06/2017 **Date Permit Application Filed:** 11/17/2017

Delivery method pursuant to West Virginia Code § 22-6A-16(b)

HAND DELIVERY CERTIFIED MAIL
RETURN RECEIPT REQUESTED

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.

Notice is hereby provided to the SURFACE OWNER(s):

Name: Steve and Ed Ward
Address: 500 California Street
Farmersville, OH 45325

Name: Sharon Hupp and Richard Markonich
Address: 814 Irish Ridge Road
Cameron, WV 26033

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-16(b), notice is hereby given that the undersigned well operator has an intent to enter upon the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>535376.070</u>
County:	<u>Marshall</u>		Northing:	<u>4423201.512</u>
District:	<u>Webster</u>	Public Road Access:	<u>Irish Ridge Road</u>	
Quadrangle:	<u>Majorsville</u>	Generally used farm name:	<u>Steve and Ed Ward</u>	
Watershed:	<u>Wheeling Creek (HUC 10)</u>			

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(b), this notice 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. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Notice is hereby given by:

Well Operator: HG Energy II Appalachia, LLC
Address: 5260 Dupont Road
Parkersburg, WV 26101
Telephone: 304-420-1119
Email: dwhite@hgenergyllc.com
Facsimile: 304-863-3172

Authorized Representative: Diane White *Diane White*
Address: 5260 Dupont Road
Parkersburg, WV 26101
Telephone: 304-420-1119
Email: dwhite@hgenergyllc.com
Facsimile: 304-863-3172

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.

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03/02/2018

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, Steve Ward, 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:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>535,381.6</u>
County:	<u>Marshall</u>		Northing:	<u>4,423,214.4</u>
District:	<u>Webster</u>	Public Road Access:		<u>SLS 48</u>
Quadrangle:	<u>Majorsville</u>	Generally used farm name:		<u></u>
Watershed:	<u>Wheeling Creek</u>			

Name: Steve Ward
Address: 50 California St.
Farmersville, OH 45325

Signature: *Steve Ward*
Date: 7-14-17

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 depprivacyofficer@wv.gov.

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WV Department of
Environmental Protection

WW-6A4W
(1/12)Operator Well No. 0827A.C02EJHJLAKO

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, Sharon Hupp, 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:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>535,381.6</u>
County:	<u>Marshall</u>		Northing:	<u>4,423,214.4</u>
District:	<u>Webster</u>	Public Road Access:		<u>SLS 48</u>
Quadrangle:	<u>Majorsville</u>	Generally used farm name:		<u></u>
Watershed:	<u>Wheeling Creek</u>			

Name: Sharon Hupp
Address: 17 Elm Crest Dr,
Wheeling, WV 26003

Signature: Sharon Hupp
Date: July 13, 2017

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 of your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

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Environmental Protection

03/02/2018

WW-6A4W
(1/12)Operator Well No. 0427A0000000000000

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, Rick Markonich, 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:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>535,381.6</u>
County:	<u>Marshall</u>		Northing:	<u>4,423,214.4</u>
District:	<u>Webster</u>	Public Road Access:	<u>SLS 46</u>	
Quadrangle:	<u>Majorsville</u>	Generally used farm name:	<u></u>	
Watershed:	<u>Wheeling Creek</u>			

Name: Rick Markonich
Address: 614 Irish Ridge Rd.
Cameron, WV 26033

Signature: *Rick Markonich*
Date: 7/13/2017

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.

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WW-6A5
(1/12)

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

Notice Time Requirement: notice shall be provided no later than the **filing date of permit application.**

Date of Notice: 11/08/2017 **Date Permit Application Filed:** 11/17/2017

Delivery method pursuant to West Virginia Code § 22-6A-16(c)

CERTIFIED MAIL HAND
RETURN RECEIPT REQUESTED DELIVERY

Pursuant to W. Va. Code § 22-6A-16(c), no later than the date for filing the permit application, an operator shall, by certified mail return receipt requested or hand delivery, give the surface owner whose land will be used for the drilling of a horizontal well notice of the planned operation. The notice required by this subsection shall include: (1) A copy of this code section; (2) The information required to be provided by subsection (b), section ten of this article to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. (d) The notices required by this section shall be given to the surface owner at the address listed in the records of the sheriff at the time of notice.

Notice is hereby provided to the SURFACE OWNER(s)
(at the address listed in the records of the sheriff at the time of notice):

Name: Steve and Ed Ward Name: _____
Address: 500 California Street Address: _____
Farmersville, OH 45325 _____

Notice is hereby given:

Pursuant to West Virginia Code § 22-6A-16(c), notice is hereby given that the undersigned well operator has developed a planned operation on the surface owner's land for the purpose of drilling a horizontal well on the tract of land as follows:

State:	<u>West Virginia</u>	UTM NAD 83	Easting:	<u>535376.070</u>
County:	<u>Marshall</u>		Northing:	<u>4423201.512</u>
District:	<u>Webster</u>	Public Road Access:	<u>Irish Ridge Road</u>	
Quadrangle:	<u>Majorsville</u>	Generally used farm name:	<u>Steve and Ed Ward</u>	
Watershed:	<u>Wheeling Creek</u>			

This Notice Shall Include:

Pursuant to West Virginia Code § 22-6A-16(c), this notice shall include: (1) A copy of this code section; (2) The information required to be provided by **W. Va. Code § 22-6A-10(b)** to a surface owner whose land will be used in conjunction with the drilling of a horizontal well; and (3) A proposed surface use and compensation agreement containing an offer of compensation for damages to the surface affected by oil and gas operations to the extent the damages are compensable under article six-b of this chapter. Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oil-and-gas/pages/default.aspx.

Well Operator:	<u>HG Energy II Appalachia, LLC</u>	Address:	<u>5260 Dupont Road</u>
Telephone:	<u>304-420-1119</u>		<u>Parkersburg, WV 26101</u>
Email:	<u>dwhite@hgeneryllc.com</u>	Facsimile:	<u>304-863-3172</u>

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.

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WV Department of
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WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

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

Earl Ray Tomblin
 Governor

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

Reissued April 19, 2017

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

Subject: DOH Permit for the SHL-27 and SHL-72 Well Pads, Marshall County

Dear Mr. Martin,

The West Virginia Division of Highways has issued Permit #06-2014-0641 for the subject site to Noble Energy, Inc. for access to the State Road for the well sites located off of Marshall County Route 48 SLS.

The operator has signed an 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.
 Regional Maintenance Engineer
 Central Office Oil & Gas Coordinator

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 Environmental Protection

03/02/2018

Cc: James L. McCune
 Noble Energy, Inc.
 CH, OM, D-6
 File

HG Energy II Appalachia, LLC
List of Frac Additives by Chemical Name and CAS #

SHL27 HHS

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	

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Environmental Protection

03/02/2018



LOCATION MAP
NOT TO SCALE

EXISTING API NUMBERS
47-051-01791

PROPERTY OWNERS

- STEVE AND ED WARD 15-3-5
50 CALIFORNIA ST
FARMERSVILLE, OH 45325
- SHARON HUPP AND RICHARD MARKONICH 15-3-3
614 IRISH RIDGE RD
CAMERON, WV 26033

WVDEP OOG
ACCEPTED AS-BUILT

WJL 9 / 28 / 2017



HG ENERGY II APPALACHIA LLC
5260 DUPONT ROAD
PARKERSBURG, WV 26101
(304) 420-1100 MAIN OFFICE
(304) 863-3172 FAX

SHL27 WELL SITE

WELL SITE LOCATION

NAD 83 - LAT: N 39°57'30.171"; LONG: W 80°35'08.959"
NAD 27 - LAT: N 39°57'29.899"; LONG: W 80°35'09.687"

ENTRANCE LOCATION

NAD 83 - LAT: N 39°57'15.078"; LONG: W 80°35'31.316"
NAD 27 - LAT: N 39°57'14.806"; LONG: W 80°35'32.043"

MAJORSVILLE QUADRANGLE
MARSHALL COUNTY, WEST VIRGINIA
DATE: JULY 28, 2015

Blue Mountain Inc.
Engineers and Land Surveyors
11023 Mason Dixon Hwy.
Burton, WV 26562-9656
(304) 662-6486

NOTE: DRAWING WAS CREATED ON 22X34 PAPER. 11X17 DRAWINGS
ARE HALF SCALE. REFER TO SCALE BAR FOR PROPER SCALING.



LOCATION MAP
MAJORSVILLE 7.5M USGS QUADRANGLE
SCALE: 1"=200'

SHEET INDEX	
DRAWING NUMBER	DRAWING NAME
1	COVER SHEET
2,3	AS-BUILT CONDITIONS PLAN
4,5	AS-BUILT CONDITIONS PLAN W/ ORTHO
6	ACCESS ROAD PROFILE

JW 8/11/17



HG ENERGY II APPALACHIA LLC
ENGINEERING REPORT FOR
PARKERSBURG, WV 26101

SHL27 WELL PAD
AS-BUILT COVER SHEET



Revisions

DATE	BY	REVISION
6-15-15	WJL	UPDATED AS-BUILT
6-11-17	WJL	UPDATED AS-BUILT
8-28-17	WJL	W/ ORTHO

William J. Wilkins

EXAMINER: SEC
DESIGNED BY: WJL
DATE: 8/11/17
SCALE: AS SHOWN
JOB NO.: 1508-D
DRAWING TITLE: SHL27 WELL PAD COVER SHEET
SHEET 1 OF 6

**WVDEP OOG
ACCEPTED AS-BUILT**

9/28/2017

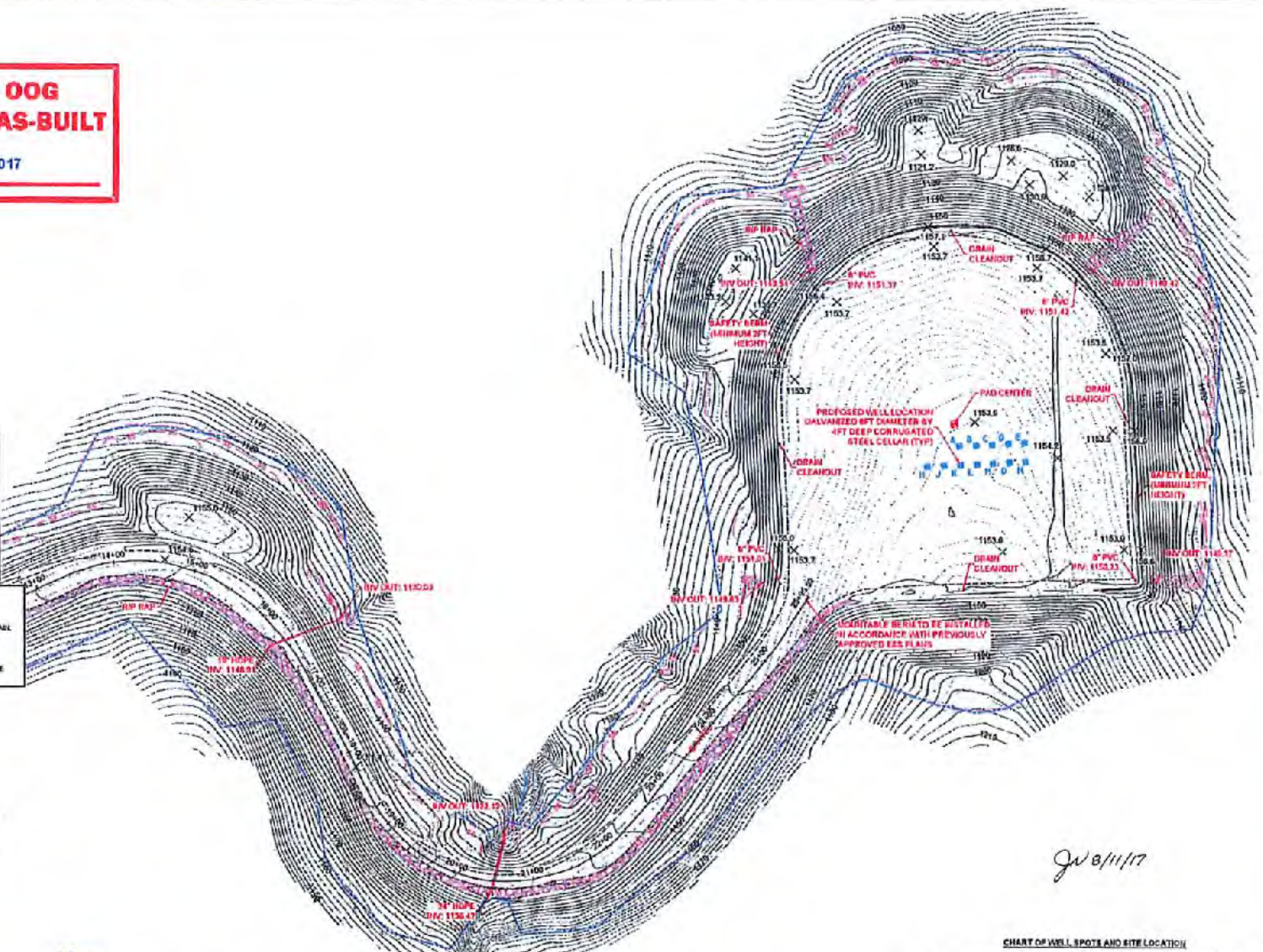
CONSTRUCTION QUALITIES:
 AREA BY CUT: 408,264 S.F., 9.21 ACRES
 AREA BY FILL: 434,972 S.F., 9.93 ACRES
 TOTAL ILLUMINATED AREA: 843,236 S.F., 19.14 ACRES
 CUT TO FILL RATIO: 1.02
 AVERAGE CUT DEPTH: 5.68'
 AVERAGE FILL DEPTH: 5.29'
 MAX CUT DEPTH: 21.54' MAX FILL DEPTH: 23.28'
 CUT VOLUME: 2,362,218 C.Y., 15,438,871 C.F.
 FILL VOLUME: 2,258,863 S.F., 15,395,718 C.F.
 PAD AND ROAD STONE QUANTITIES AT 4" THICK VOLUME: 89,549 C.F., 3,374,832 C.Y.
 *NO STONE ILLUMINATED BY CURB/AIL VOLUMES

GENERAL NOTES:
 1. DRAWING UTILIZES PER-EXISTING AND POST CONSTRUCTION/AS-BUILT MAPPING CORRELATED WITH SURVEY DATA. ALL PROVIDED BY BLUE MOUNTAIN PRE-EXISTING PHOTOGRAPHY DATED 10/15/16. POST CONSTRUCTION PHOTOGRAPHY DATE BEHINDS POST CONSTRUCTION SURVEY DATE 05/15/17.
 2. COORDINATE SYSTEM: NAD83 WEST VIRGINIA STATE PLANE, NORTH ZONE, US FEET.

- LEGEND**
- SUMP
 - FENCE LINE
 - RP RAP
 - ROOF OF GRAVE
 - SET PRICE
 - S&L SICK
 - STREAK
 - TRUNK
 - ROCK CRITICAL (POST CONSTR)
 - GREEN CRITICAL (POST CONSTR)
 - SLOUGH PIPE EXISTING
 - DESIGN LID
 - UTILITY POLE
 - MISCELLANEOUS POLE OR SIGN
 - POST
 - SIGN



NOTE: DRAWING WAS CREATED ON 22x34 PAPER. 11x17 DRAWINGS ARE MADE SCALE. REFER TO SCALE BAR FOR PROPER SCALES.



9/28/17

CHART OF WELL SPOTS AND SITE LOCATION

POINT	NAD83 NUTM NORTH	NAD83 NUTM WEST	UTM ZONE 18 Q (EASTING)
ENTRANCE	127211.847	127211.847	127211.847
PAD CENTER	127211.847	127211.847	127211.847

Note:
 Existing sumps will be cleaned and reused.
 There will be no discharge from sumps during drilling activities.



NO ENERGY APPLICATIONS
 PARCELS/NO. WV 28003
 SHL27 WELL PAD
 AS-BUILT



REVISIONS

DATE	BY	DESCRIPTION
04/17	WVDEP	WVDEP REVIEW
04/17	WVDEP	WVDEP REVIEW
04/17	WVDEP	WVDEP REVIEW



William J. O'Leary

CREATED BY: EEC
 CHECKED BY: JCM
 DATE: 09/28/17
 SCALE: 1" = 60'
 SHEET NO.: 1 OF 6