



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

Friday, June 29, 2018
WELL WORK PERMIT
Horizontal 6A / New Drill

HG ENERGY II APPALACHIA, LLC
5260 DUPONT ROAD

PARKERSBURG, WV 26101

Re: Permit approval for MND 20 DU
47-051-02014-00-00

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: MND 20 DU
Farm Name: CONSOLIDATION COAL COM
U.S. WELL NUMBER: 47-051-02014-00-00
Horizontal 6A New Drill
Date Issued: 6/29/2018



west virginia department of environmental protection

Oil and Gas Conservation Commission
601 57th Street SE, Charleston, WV 25304
304-926-0499 Ext 1274

Barry K. Lay, Chairman
dep.wv.gov

June 25, 2018

Department of Environmental Protection
Office of Oil and Gas
Charleston, WV 25304

RE: Application for Deep Well Permit – API #47-051-02014

COMPANY: HG Energy II Appalachia, LLC

FARM: HG Energy II Appalachia, LLC MND 20 DU

COUNTY: Marshall DISTRICT: Franklin QUAD: Powhatan Point 7 ½'

The deep well review of the application for the above company is **Approved to drill to Point Pleasant for completion.**

The applicant has complied with the provision of Chapter 22C-9, of the Code of West Virginia, nineteen hundred and thirty-one (1931), as amended, Oil and Gas Conservation Commission as follows:

1. Comments to Notice of Deviation filed? No.
2. Provided a certified copy of duly acknowledged and recorded consent and easement form from all surface owners? Yes
3. Provided a tabulation of all deep wells within one mile of the proposed location, including the API number of all deep wells: none
4. Provided a plat showing that the proposed location is a distance of 400+ feet from the nearest lease line or unit boundary and showing the following wells drilled to or capable of producing from the objective formation within 3,000 feet of the proposed location.

Sincerely,

A handwritten signature in blue ink that reads "Susan Rose".

Susan Rose
Administrator

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.

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.

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>Franklin</u>	<u>Powhatan Point</u>
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Operator ID County District Quadrangle

2) Operator's Well Number: MND20 DU Well Pad Name: MND20

3) Farm Name/Surface Owner: Murray Energy Corp Public Road Access: SLS 2/1

4) Elevation, current ground: 1079' Elevation, proposed post-construction: 1058'

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

(b) If Gas Shallow _____ Deep X
Horizontal X

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):
Point Pleasant 10662' - 10782' / 120' Thick / 9668 psi

8) Proposed Total Vertical Depth: 10,700'

9) Formation at Total Vertical Depth: Point Pleasant

10) Proposed Total Measured Depth: 27,990'

11) Proposed Horizontal Leg Length: 16,491'

12) Approximate Fresh Water Strata Depths: 445, 708', 805'

13) Method to Determine Fresh Water Depths: Nearest offset well

14) Approximate Saltwater Depths: NA

15) Approximate Coal Seam Depths: 526' - 536'

16) Approximate Depth to Possible Void (coal mine, karst, other): None anticipated, drilling in pillar

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

(a) If Yes, provide Mine Info: Name: Wells are located in abandoned area of McElroy Mine
Depth: 526' - 536'
Seam: Pittsburgh #8
Owner: Consol Mining Company, LLC



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WW-6B
(04/15)

API NO. 47- 51-02014
 OPERATOR WELL NO. MND20 DU
 Well Pad Name: MND20

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#	60'	60'	NA
Fresh Water	20"	New	J-55	94#	950'	950'	CTS
Coal	13 3/8"	New	J-55	54.5#	2300'	2300'	CTS
Intermediate	9 5/8"	New	P-110	47#	9082'	9082'	CTS
Production	5 1/2"	New	P-110	23#	27990'	27990'	20% excess, yield = 1.7669, CTS
Tubing							
Liners							

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"	0.5"			Class A	CTS
Fresh Water	20"	26"	0.438"	2110 psi		Class A	40% Excess Yield = 1.1924, CTS
Coal	13 3/8"	17.5"	0.380"	2730 psi		Class A	30% Excess Yield = 1.16, CTS
Intermediate	9 5/8"	12.25"	0.472"	9440 psi		Stage 1, Class H, Design H	30% Excess Yield = 1.1744, CTS
Production	5 1/2"	8.5"	0.361" ^{415"}	14520 psi	11,500	Class H	20% Excess Yield = 1.7669, CTS
Tubing							
Liners							

PACKERS

Kind:				
Sizes:				
Depths Set:				



SI-02014

U. S. Steel Tubular Products
Product Information
5 1/2 23 lb (0.415) P110 HC
USS-CDC HTQ ^{IM}

6/1/2012

MECHANICAL PROPERTIES	Yield Strength		
Pipe Body	Minimum	110	ksi
	Maximum	140	ksi
Coupling Mechanical Properties are the same as the API specified grade.	Tensile Strength		
	Minimum	125	ksi

PIPE PROPERTIES			
Dimensions, Nominal	Pipe Outside Diameter	5.500	in.
	Wall	0.415	in.
	Pipe Inside Diameter	4.670	in.
	Pipe Drift - API	4.545	in.
	Nominal Linear Weight, T&C	23.00	lbs/ft
	Pipe Cross Sectional Area	6.630	sq. in.
Performance Properties	Minimum Pipe Body Yield Strength	729	1,000 lbs
	Minimum Collapse Pressure	15,310	psi
	Minimum Internal Yield Pressure	14,520	psi

CONNECTION PROPERTIES			
Dimensions, Nominal	Connection Outside Diameter	6.300	in.
	Connection Inside Diameter	4.670	in.
	Connection Drift - API	4.545	in.
	Makeup Loss	4.63	in.
	Critical Area	6.630	sq in.
	Joint Efficiency	100.0	%
	Performance Properties	Joint Strength	759
Compression Rating		455	1,000 lbs
Minimum Collapse Pressure		15,310	psi
Minimum Internal Yield Pressure		14,520	psi
Maximum Uniaxial Bend Rating		57.3	deg/100 ft
Connection Yield Torque		27,800	ft - lbs
Recommended Torque Values	Minimum Makeup Torque	15,000	ft - lbs
	Maximum Makeup Torque	21,000	ft - lbs

* Note: Verification of connection shoulder is required. Typical shoulder range 5,000 - 7,500 ft - lbs

* USS-CDC HTQ (Casing Drilling Connection) is a modified API Buttress threaded and coupled connection designed for drilling with casing applications.

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U. S. Steel Tubular Products, Inc. - 600 Grant Street, Pittsburgh, PA 15219

www.uss.com

06/29/2018

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

Drill the vertical depth to the Point Pleasant at an estimated total vertical depth of approximately 10,700 feet. Drill horizontal leg - stimulate and produce the Point Pleasant Formation. Should we encounter formation issues, set the 20" into next competent formation but not deeper than elevation. Should we encounter an unanticipated void 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. Maximum pressure not to exceed 10,000 psi.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 17.39

22) Area to be disturbed for well pad only, less access road (acres): 3.8

23) Describe centralizer placement for each casing string:

Conductor - No centralizers used. Fresh Water/Surface - Centralizers every 3 joints to surface. 1st Intermediate - Bow spring on first 2 joints then every third joint to 100' from surface. Intermediate - Bow spring on first 8 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. See Attached Schematic for more detail.

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

Conductor - N/A. Casing to be drilled in w/ Dual Rotary Rig
Surface/Fresh Water - 15.8 ppg PNE-1, Class A + 2.5% bwoc CaCl₂, 40% Excess Yield = 1.1924 / CTS
1st Intermediate - Lead: 15.0 ppg Class A, 2.5% bwoc CaCl₂, 30% Excess, Yield=1.2963 Tail: 15.0 ppg / Class A / 2.5% bwoc CaCl₂, 30% Excess, Yield=1.16 / CTS
2nd Intermediate - Stage 1: 15.2 ppg PNE-1+2.5% bwoc CaCl₂, 35.65 Class H, 30% Excess, Yield=1.1313 / Stage 2: 14.5 ppg PNE-1+2.5% bwoc CaCl₂, 50.50 Class A, 30% Excess, Yield=1.1744 / CTS
Production - Lead: 15.0 ppg, 35.65 Class H +0.75 gal/sk FP-13L +0.3%bwoc MPA-250 +0.35% bwoc R3, 20% Excess, Yield=1.1475 Tail: 5.6 ppg, Class H + Acid Soluble +0.75 gal/sk FP-15L +.55% bwoc MPA-250 + 0.2% bwoc R5 + 30% bwoc ASA01, 20% Excess / Yield=1.766 / CTS
See Attached Casing Schematic for more detail

25) Proposed borehole conditioning procedures:

Conductor - Ensure the hole is clean at TD. Surface/Fresh Water - Once casing is at setting depth, circulate a minimum of one hole volume with Fresh Water prior to pumping cement. 1st Intermediate - Once casing is at setting depth, circulate and condition at TD. Circulate a minimum of one hole volume prior to pumping cement. 2nd 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 bottoms up, or until returns and pump pressures indicate the hole is clean. Circulate a minimum of one hole volume prior to pumping cement. See Attached Schematic for more detail.

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*Note: Attach additional sheets as needed.

SI-02014



MND20DUHS
Utica Shale Horizontal
Marshall County, WV

Ground Elevation		1058'		MND20DUHS SHL				494960.84N 1634129.63E			
Azm		144.906°		MND20DUHS LP				495999.35N 1635672.67E			
WELLBORE DIAGRAM		144.906°		MND20DUHS BHL				482506.47N 1645153.5E			
HOLE	CASING	GEOLOGY	TOP	BASE	MUD	CEMENT	CENTRALIZERS	CONDITIONING	COMMENTS		
30"	30" 157.5# LS	Conductor	0	60	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" wall thickness		
26"	20" 94# J-55	Fresh Water		445, 708, 805	AIR	15.6 ppg Class A 40% Excess Yield = 1.1924 / 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" wall thickness Burst=2110 psi		
		Pittsburgh Coal	525	536							
17.5"	13-3/8" 54.5# J-55 BTC	Big Lime	1625	1741	AIR	Lead: 15.0 ppg / Class A / 30% Excess / Yield=1.2853 Tail: 15.6 ppg / Class A / 30% Excess / Yield=1.18 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" wall thickness Burst=2730 psi		
		Big Injun	1741	1854							
12.25"	9-5/8" 47# P-110 BTC	1st Intermediate Casing	0	2300	AIR / KCL - Sat Polymer / 9.0ppg SOBM	Stage 1: 15.2 ppg / 35.65 Class H / 30% Excess / Yield=1.1313 Stage 2: 14.5 ppg / 50.50 Class A / 30% Excess / Yield=1.1744 CTS	Bow Spring on first 8 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.	Intermediate casing = 0.472" wall thickness Burst=9440 psi		
		5th Sand	2599	3156							
		Speechley	3156	3770							
		Warren	3770	4707							
		Java	4707	4802							
		Pipe Creek	4802	4889							
		Angola	4889	5471							
		Rhinesreet	5471	5792							
		Cashaqua	5792	5864							
		Middlesex	5864	5887							
		West River	5887	5948							
		Burkett	5948	5973							
		Tully LS	5973	5997							
		Hamilton	5997	6032							
		Marcellus	6032	6087							
		Onondaga	6087	6095							
		Huntersville	6095	6309							
		Oriskany	6309	6421							
		Helderburg	6421	6681							
		Bass Island	6681	6760							
Salina G	6760	6960									
Salina F	6960	7759									
Lockport	7759	8081									
Rochester	8081	8385									
Packer Shell	8385	8492									
Clinton	8492	8575									
Medina	8575	8874									
Queenston	8874	9431									
2nd Intermediate	0	9000 TVD	9082 MD								
8.5" Curve and 8.5" Lateral	5-1/2" 23# P-110 HC CDC HTQ	Reedsville	9431	10049	10.5ppg-14.5ppg SOBM	Lead: 15.0 ppg / 35.65 Class H / 20% Excess / Yield=1.1475 Tail: 15.8 ppg / Class H Acid Soluble / 20% Excess / Yield=1.7669 CTS	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.	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" wall thickness Burst=12640 psi Note: Actual centralizer schedules may be changed due to hole conditions		
		Utica	10049	10662							
		Point Pleasant	10662	10782							
		Target	10700	10700							

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LP @ 10700' TVD / 11499' MD 8.5" Hole - Cemented Long String 5-1/2" 23# P-110 HC CDC HTQ +/-16491' ft Lateral TD @ +/-10700' TVD +/-27990' MD

**HG Energy II Appalachia, LLC
MND20 Well Pad (AU,BU,CU,DU,EU)
Cement Additives**

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>126-73-8</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	Tributyl phosphate	90 - 100	126-73-8												
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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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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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Crystalline silica: Quartz (SiO2)	5 - 10	14808-60-7																			
Calcium oxide	1 - 5	1305-78-8																			
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 - 60</td> <td>Trade secret.</td> </tr> </tbody> </table>	Ingredient name	%	CAS number	Organic acid salt	40 - 60	Trade secret.												
Ingredient name	%	CAS number																			
Organic acid salt	40 - 60	Trade secret.																			
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-Glucoopyranose, oligomeric, C10-16-alkyl glycosides</td> <td>5 - 10</td> <td>110615-47-9</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-Glucoopyranose, oligomeric, C10-16-alkyl glycosides	5 - 10	110615-47-9	Alkylarylsulfonate amine salt	1 - 5	Trade secret.	Polyoxyalkylenes	0.1 - 1	Trade secret.
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HG Energy II Appalachia, LLC
List of Frac Additives by Chemical Name and CAS #
MND20 Well Pad (AU,BU,CU,DU,EU)

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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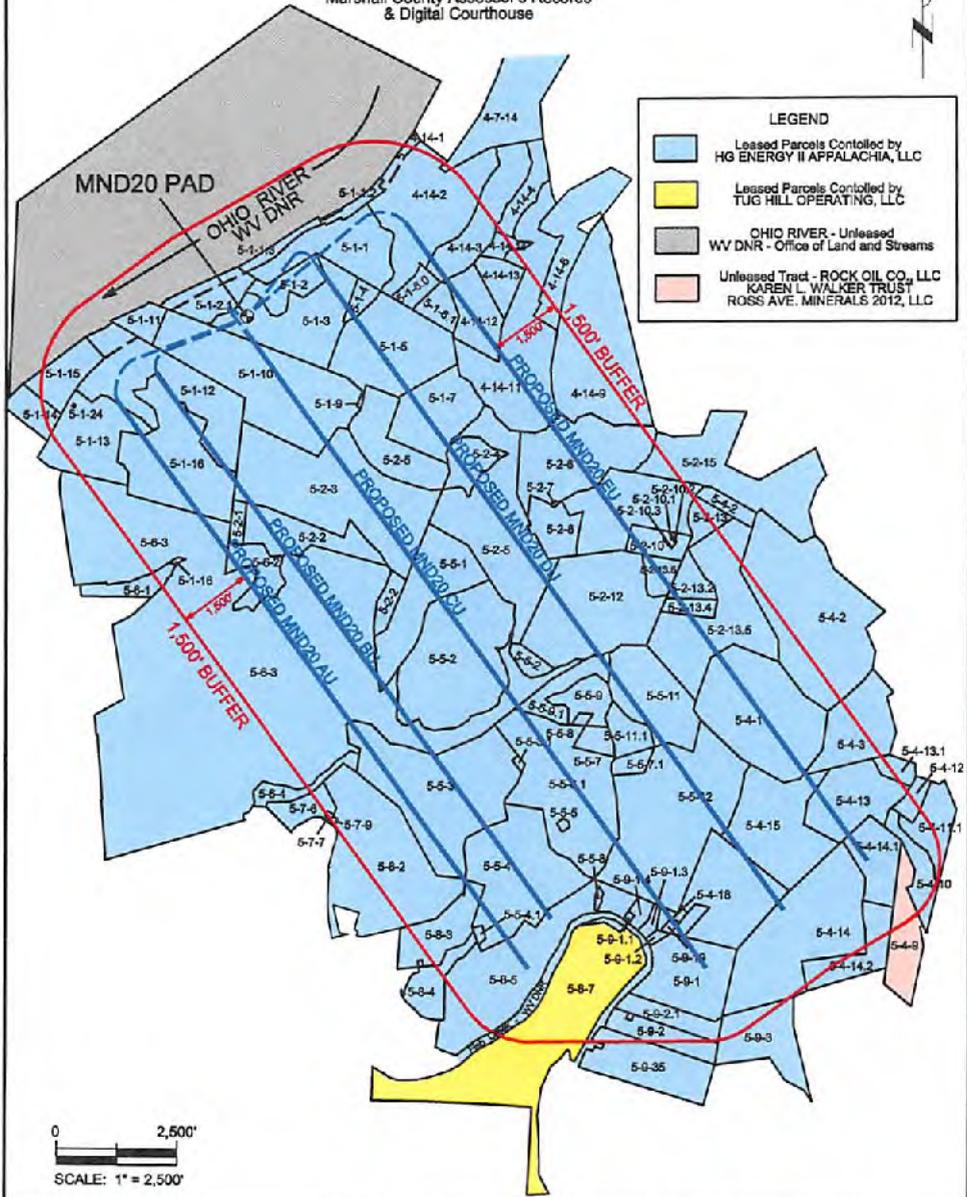
NOTE:
See Attached Spreadsheet for Parcel Data

DATA SOURCES:
Marshall County Assessor's Records
& Digital Courthouse



LEGEND

- Leased Parcels Contolled by HG ENERGY II APPALACHIA, LLC
- Leased Parcels Contolled by TUG HILL OPERATING, LLC
- OHIO RIVER - Unleased WV DNR - Office of Land and Streams
- Unleased Tract - ROCK OIL CO, LLC KAREN L. WALKER TRUST ROSS AVE. MINERALS 2012, LLC



Map Showing 1,500' Buffer Around:

MND20 UTICA PAD

Showing Surface Parcels within 1,500' of Propped Well Bores

- MND20 AU Wellbore
- MND20 BU Wellbore
- MND20 CU Wellbore
- MND20 DU Wellbore
- MND20 EU Wellbore



Clay & Franklin Districts, Marshall County, W.Va.

6/6/2016

WW-9
(4/16)

API Number 47 - _____ - _____
Operator's Well No. MND20 DU

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) Short Creek - Ohio River (HUC 10) Quadrangle Powhatan Point

Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes No

Will a pit be used? Yes No

If so, please describe anticipated pit waste: NA

Will a synthetic liner be used in the pit? Yes No If so, what ml.? _____

Proposed Disposal Method For Treated Pit Wastes:

- Land Application
- Underground Injection (UIC Permit Number _____)
- Reuse (at API Number TBD - At next anticipated well)
- Off Site Disposal (Supply form WW-9 for disposal location)
- Other (Explain _____)

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

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

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

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? See Attached List

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

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Subscribed and sworn before me this 26th day of January, 20 18

Cassidy A. Boardman Notary Public

My commission expires 7/31/2022



HG Energy II Appalachia, LLC

Proposed Revegetation Treatment: Acres Disturbed 17.39 Prevegetation pH _____

Lime 3 Tons/acre or to correct to pH 6.5

Fertilizer type 10-20-20

Fertilizer amount 500 lbs/acre

Mulch Hay 2 Tons/acre

Seed Mixtures

Temporary

Permanent

Seed Type	lbs/acre
Tall Fescue	40
Ladino Clover	5

Seed Type	lbs/acre
Tall Fescue	40
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: Jane Wickham

Comments: _____

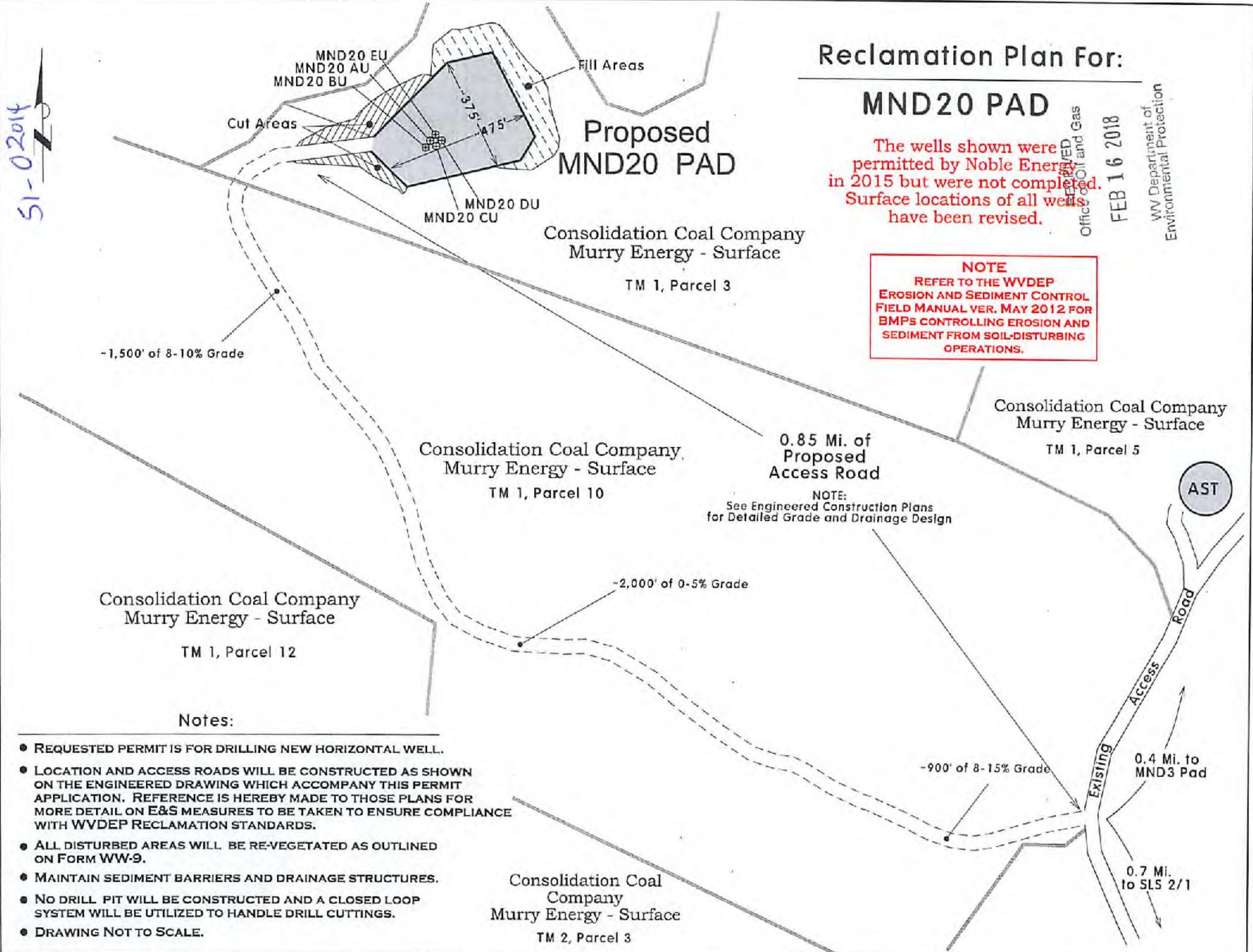
Title: Oil & Gas Inspector

Date: 2/5/18

Field Reviewed? Yes No

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SI-02014



Reclamation Plan For:

MND20 PAD

The wells shown were permitted by Noble Energy in 2015 but were not completed. Surface locations of all wells have been revised.

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

-1,500' of 8-10% Grade

Consolidation Coal Company,
Murry Energy - Surface
TM 1, Parcel 10

0.85 Mi. of
Proposed
Access Road

NOTE:
See Engineered Construction Plans
for Detailed Grade and Drainage Design

Consolidation Coal Company
Murry Energy - Surface
TM 1, Parcel 5

Consolidation Coal Company
Murry Energy - Surface
TM 1, Parcel 12

-2,000' of 0-5% Grade

-900' of 8-15% Grade

0.4 Mi. to
MND3 Pad

0.7 Mi.
to SLS 2/1

Consolidation Coal
Company
Murry Energy - Surface
TM 2, Parcel 3

Notes:

- REQUESTED PERMIT IS FOR DRILLING NEW HORIZONTAL WELL.
- LOCATION AND ACCESS ROADS WILL BE CONSTRUCTED AS SHOWN ON THE ENGINEERED DRAWING WHICH ACCOMPANY THIS PERMIT APPLICATION. REFERENCE IS HEREBY MADE TO THOSE PLANS FOR MORE DETAIL ON E&S MEASURES TO BE TAKEN TO ENSURE COMPLIANCE WITH WVDEP RECLAMATION STANDARDS.
- ALL DISTURBED AREAS WILL BE RE-VEGETATED AS OUTLINED ON FORM WW-9.
- MAINTAIN SEDIMENT BARRIERS AND DRAINAGE STRUCTURES.
- NO DRILL PIT WILL BE CONSTRUCTED AND A CLOSED LOOP SYSTEM WILL BE UTILIZED TO HANDLE DRILL CUTTINGS.
- DRAWING NOT TO SCALE.

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 #R90-079001 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-103-97 / 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

CMS of Delaware Inc. DBA CMS Oilfield Serv
 301 Commerca 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

Nichlos 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

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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, OH 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 Buckeye 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 11385
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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**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 *****

**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

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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
MND20 DU Lease Chains

HG Plat Number	MPID	Original Lessor	Original Lessee	Royalty	Book	Page
1) ✓	05-0001-0003-0000-0000	Belinda Eddy fka Belinda Page Hoover	CNX Gas Company, LLC	Not less than 1/8	794	55
		Dara Marner and Douglas D. Marner	CNX Gas Company, LLC	Not less than 1/8	794	43
		Jessica McNabb fka Jessica Faye Hoover	CNX Gas Company, LLC	Not less than 1/8	794	49
		Cheryl Sullivan, a single woman	CNX Gas Company, LLC	Not less than 1/8	794	46
		George H. Wells and Nancy Eklund Wells	CNX Gas Company, LLC	Not less than 1/8	794	58
		William C.M. Wilson and Hiram C. Wilson	CNX Gas Company, LLC	Not less than 1/8	800	626
		Wayland W. Bowser	CNX Gas Company, LLC	Not less than 1/8	794	52
		Barbara G. Mathews, by Gay L. Mathews, Her Attorney in Fact	CNX Gas Company, LLC	Not less than 1/8	831	148
		CNX Gas Company, LLC	Noble Energy, Inc.	Fee	752	66
		Noble Energy, Inc.	APPALACHIA, LLC	Fee	39	1
2) ✓	05-0001-0002-0001-0000	Noble Energy, Inc.	HG ENERGY II APPALACHIA, LLC	Fee	39	1
3) ✓	05-0001-0010-0000-0000	Ruth Ann Ferris	CNX Gas Company, LLC	Not less than 1/8	776	535
		Larry F. Jefferson	CNX Gas Company, LLC	Not less than 1/8	776	539
		Noble Marcellus, LP	Anacapa Holdings, LLC	Not less than 1/8	781	267
		Anacapa Holdings, LLC	Noble Energy, Inc.	Not less than 1/8	28	275
		Consolidation Coal Company	CNX Gas Company, LLC	Fee	646	493
		CNX Gas Company, LLC	Noble Energy, Inc.	Fee	752	66
		Noble Energy, Inc.	APPALACHIA, LLC	Fee	39	1
4) ✓	05-0001-0001-0000-0000	Noble Energy, Inc.	HG ENERGY II APPALACHIA, LLC	Fee	39	1
5)	04-0014-0002-0000-0000	Consolidation Coal Company	CNX Gas Company, LLC	Fee	646	493
		CNX Gas Company, LLC	Noble Energy, Inc.	Fee	752	66
		NOBLE ENERGY INC	APPALACHIA, LLC	Fee	39	1
6)	05-0001-0002-0000-0000	CNX Gas Company, LLC	Noble Energy, Inc.	Fee	752	66
		Noble Energy, Inc.	APPALACHIA, LLC	Fee	39	1
7) ✓	05-0001-0004-0000-0000	CNX Gas Company, LLC	Noble Energy, Inc.	Fee	752	66
		Noble Energy, Inc.	APPALACHIA, LLC	Fee	39	1
8) ✓	05-0001-0005-0000-0000	Howard T. Conner	CNX Gas Company, LLC	Not less than 1/8	790	32
		Mary L. Whittington	CNX Gas Company, LLC	Not less than 1/8	792	398
		Ruth Ann Ferris	CNX Gas Company, LLC	Not less than 1/8	789	556
		Larry F. Jefferson	CNX Gas Company, LLC	Not less than 1/8	790	29
		Cheryl Sullivan	CNX Gas Company, LLC	Not less than 1/8	794	46
		Barbara G. Mathews, by Gay L. Mathews,	CNX Gas Company, LLC	Not less than 1/8	793	209
		Belinda Eddy fka Belinda Page Hoover	CNX Gas Company, LLC	Not less than 1/8	794	55
		Sarah Knabenshue, married	CNX Gas Company, LLC	Not less than 1/8		

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E

		Dara Marner and Douglas D. Marner	CNX Gas Company, LLC	Not less than 1/8	794	43
		Jessica McNabb fka Jessica Faye Hoover	CNX Gas Company, LLC	Not less than 1/8	794	49
		George H. Wells and Nancy Eklund Wells	CNX Gas Company, LLC	Not less than 1/8	794	58
		William C.M. Wilson and Hiram C. Wilson	CNX Gas Company, LLC	Not less than 1/8	800	626
		Wayland W. Bowser	CNX Gas Company, LLC	Not less than 1/8	794	52
		Consolidation Coal Company	CNX Gas Company, LLC		646	493
		CNX Gas Company, LLC	Noble Energy, Inc. HG ENERGY II		752	66
		NOBLE ENERGY INC	APPALACHIA, LLC		39	1
9)	05-0001-0006-0000-0000	Susan Kay Flowers & Robert L. Flowers	Noble Energy, Inc.	Not less than 1/8	796	152
		Carol Lynn Gill	Noble Energy, Inc.	Not less than 1/8	796	150
		William Gary & Nancy L. Messner	Noble Energy, Inc.	Not less than 1/8	796	146
		George Michael & Pamela S. Messner	Noble Energy, Inc.	Not less than 1/8	796	449
		Ethel Marie Malson	Noble Energy, Inc.	Not less than 1/8	797	623
		Martha Jane Brown	Noble Energy, Inc.	Not less than 1/8	796	148
		CNX Gas Company, LLC	Noble Energy, Inc. HG ENERGY II		752	66
		NOBLE ENERGY INC	APPALACHIA, LLC		39	1
10)	05-0001-0006-0001-0000	Susan Kay Flowers & Robert L. Flowers	Noble Energy, Inc.	Not less than 1/8	796	152
		Carol Lynn Gill	Noble Energy, Inc.	Not less than 1/8	796	150
		William Gary & Nancy L. Messner	Noble Energy, Inc.	Not less than 1/8	796	146
		George Michael & Pamela S. Messner	Noble Energy, Inc.	Not less than 1/8	796	449
		Ethel Marie Malson	Noble Energy, Inc.	Not less than 1/8	797	623
		Martha Jane Brown	Noble Energy, Inc.	Not less than 1/8	796	148
		CNX Gas Company, LLC	Noble Energy, Inc. HG ENERGY II		752	66
		NOBLE ENERGY INC	APPALACHIA, LLC		39	1
11)	04-0014-0012-0000-0000	Consolidation Coal Company, et al	CNX Gas Company, LLC	Not less than 1/8	646	493
		CNX Gas Company, LLC	Noble Energy, Inc. HG ENERGY II		752	66
		NOBLE ENERGY INC	APPALACHIA, LLC	Not less than 1/8	39	1
12)	05-0002-0003-0000-0000	NOBLE ENERGY INC	CNX Gas Company, LLC	Fee	646	493
13) ✓	05-0002-0005-0000-0000,	NOBLE ENERGY INC	HG ENERGY II APPALACHIA, LLC	Fee	39	1
14) ✓	05-0002-0004-0000-0000	NOBLE ENERGY INC	HG ENERGY II APPALACHIA, LLC	Fee	39	1
15)	04-0014-0011-0000-0000	NOBLE ENERGY INC	HG ENERGY II APPALACHIA, LLC	Fee	39	1
16) ✓	05-0001-0007-0000-0000	John Alfred Yutzey and Susan Yutzey, both individually and as husband and wife	Noble Energy, Inc.	Not less than 1/8	781	19
		Glen A. Yutzey aka Glen Albert Yutzey, and Mary L. Yutzey, both individually and as husband and wife	Noble Energy, Inc.	Not less than 1/8	778	264
		Yolanda Katherine Anderson and Raymond H. Anderson, both individually and as wife and husband	Noble Energy, Inc.	Not less than 1/8	778	268
		Consolidation Coal Company	Noble Energy, Inc.	Not less than 1/8	646	493

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		CNX Gas Company, LLC	Noble Energy, Inc. HG ENERGY II	Not less than 1/8	752	66
		NOBLE ENERGY INC	APPALACHIA, LLC	Fee	39	1
17)	05-0006-0003-0000-0000, 05-0005-0001-0000-0000	Consolidation Coal Company CNX Gas Company, LLC	CNX Gas Company, LLC Noble Energy, Inc. HG ENERGY II	Fee Fee	646 752	493 66
		NOBLE ENERGY INC	APPALACHIA, LLC	Fee	39	1
18)	05-0002-0006-0000-0000, 05-0002-0007-0000-0000	Robert W. Gray, Jr., et al Chevron U.S.A. Inc.	Chevron U.S.A. Inc. Noble Energy, Inc. HG ENERGY II	Not less than 1/8	772 34	9 502
		Noble Energy, Inc.	APPALACHIA, LLC		39	1
19)	05-0002-0008-0000-0000, 05-0002-0008-0001-0000	Thomas K. Barnhart TriEnergy Holdings	TriEnergy Holdings Chevron USA INC HG ENERGY II	Not less than 1/8	705 28	490 239
		Chevron USA INC	APPALACHIA, LLC		41	154
20)	05-0002-0009-0000-0000	Andrew M. Fasouletos, et ux Michael Andrew Fasouletos Tena Marie Sticklin	Noble Energy, Inc. Noble Energy, Inc. Noble Energy, Inc.	Not less than 1/8 Not less than 1/8 Not less than 1/8	802 802 802	283 280 277
		All the above leases from NOBLE ENERGY INC	HG ENERGY II APPALACHIA, LLC	Not less than 1/8	39	1
21) ✓	05-0002-00012-0000-0000	Wesbanco Bank, Trustee John T. Gallaher EST James D. Potts and Nancy C. Potts	Noble Energy, Inc. Noble Energy Inc.	Not less than 1/8 Not less than 1/8	831 845	58 164
		NOBLE ENERGY INC	CNX Gas Company, LLC		31	59
		CNX Gas Company, LLC	Noble Energy INC HG ENERGY II		37	169
		NOBLE ENERGY INC	APPALACHIA, LLC		39	1
22)	05-0005-0002-0000-0000	Margaret Games Elizabeth Patterson Charles J. Wiesner John Wiesner Kenneth Schmitt Mary Ellen Sedon Alfred Kaczorowski, Jr., & Sharon M. Kaczorowski, his wife CNX Gas Company, LLC	CNX Gas Company, LLC CNX Gas Company, LLC Noble Energy, Inc. HG ENERGY II	Not less than 1/8 Not less than 1/8 Not less than 1/8 Not less than 1/8 Not less than 1/8	763 763 763 763 763 763 752	441 437 429 433 421 417 425 66
		NOBLE ENERGY INC	APPALACHIA, LLC		39	1
23) ✓	05-0005-0009-0001-0000	Consolidation Coal Company CNX Gas Company, LLC	CNX Gas Company, LLC Noble Energy, Inc. HG ENERGY II	Fee Fee	646 752	493 66
		NOBLE ENERGY INC	APPALACHIA, LLC	Fee	39	1
24) ✓	05-0005-0011-0000-0000	AEP Generation Resources Inc. and Kentucky Power Company	Noble Energy, Inc. HG ENERGY II	Not less than 1/8	829	157
		NOBLE ENERGY INC	APPALACHIA, LLC		39	1
25)	05-0002-0013-0001-0000	AEP Generation Resources Inc. and Kentucky Power Company	Noble Energy, Inc. HG ENERGY II	Not less than 1/8	829	157
		NOBLE ENERGY INC	APPALACHIA, LLC		39	1
26)	05-0005-0009-0000-0000	AEP Generation Resources Inc. and Kentucky Power Company	Noble Energy, Inc. HG ENERGY II	Not less than 1/8	829	157
		NOBLE ENERGY INC	APPALACHIA, LLC		39	1

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27)	05-0005-0006-0001-0000	AEP Generation Resources Inc. and Kentucky Power Company	Noble Energy, Inc. HG ENERGY II NOBLE ENERGY INC	Not less than 1/8	829	157
			APPALACHIA, LLC		39	1
28) ✓	05-0005-0008-0000-0000	AEP Generation Resources Inc. and Kentucky Power Company	Noble Energy, Inc. HG ENERGY II NOBLE ENERGY INC	Not less than 1/8	829	157
			APPALACHIA, LLC		39	1
29)	05-0002-0013-0005-0000	AEP Generation Resources Inc. and Kentucky Power Company	Noble Energy, Inc. HG ENERGY II Noble Energy, Inc.	Not less than 1/8	829	157
			APPALACHIA, LLC		39	1
30)	05-0005-0007-0000-0000	AEP Generation Resources Inc. and Kentucky Power Company	Noble Energy, Inc. HG ENERGY II NOBLE ENERGY INC	Not less than 1/8	829	157
			APPALACHIA, LLC		39	1
31)	05-0005-0011-0001-0000	AEP Generation Resources Inc. and Kentucky Power Company	Noble Energy, Inc. HG ENERGY II NOBLE ENERGY INC	Not less than 1/8	829	157
			APPALACHIA, LLC		39	1
32)	05-0005-0006-0000-0000	AEP Generation Resources Inc. and Kentucky Power Company	Noble Energy, Inc. HG ENERGY II NOBLE ENERGY INC	Not less than 1/8	829	157
			APPALACHIA, LLC		39	1
33) ✓	05-0005-0012-0000-0000	AEP Generation Resources Inc. and Kentucky Power Company	Noble Energy, Inc. HG ENERGY II NOBLE ENERGY INC	Not less than 1/8	829	157
			APPALACHIA, LLC		39	1
34)	05-0004-0001-0000-0000	AEP Generation Resources Inc. and Kentucky Power Company	Noble Energy, Inc. HG ENERGY II NOBLE ENERGY INC	Not less than 1/8	829	157
			APPALACHIA, LLC		39	1
35) ✓	05-0004-0015-0000-0000	AEP Generation Resources Inc. and Kentucky Power Company	Noble Energy, Inc. HG ENERGY II NOBLE ENERGY INC	Not less than 1/8	829	157
			APPALACHIA, LLC		39	1
36)	05-0004-0017-0000-0000	Terry Holman TriEnergy Holdings	TriEnergy Holdings Chevron USA INC HG ENERGY II Chevron USA INC	Not less than 1/8	721	557
			APPALACHIA, LLC		28	239
					41	154
37)	05-0009-0001-0000-0000	Jessi Gladys Ruckman Et Al	Noble Energy, Inc. HG ENERGY II NOBLE ENERGY INC	Not less than 1/8	730	646
			APPALACHIA, LLC		39	1
38) ✓	05-0004-0016-0000-0000	Terry Holman TriEnergy Holdings	TriEnergy Holdings Chevron USA INC HG ENERGY II Chevron USA INC	Not less than 1/8	721	557
			APPALACHIA, LLC		28	239
					41	154
39)	05-0004-0013-0000-0000	MCCLINTOCK DALE ET UX	CHEVRON USA INC HG ENERGY II CHEVRON USA INC	Not less than 1/8	773	615
			APPALACHIA, LLC		41	154
40) ✓	05-0004-0014-0000-0000	MILLER CHARLES W	CHEVRON USA INC	Not less than 1/8	853	59
		PARSONS PAUL ET UX	CHEVRON USA INC	Not less than 1/8	853	430
		RUSSELL SHARON LYN	CHEVRON USA INC	Not less than 1/8	853	422
		HUFF TIMOTHY ET UX	CHEVRON USA INC	Not less than 1/8	846	47
		ARNOLD LLOYD C ET UX	CHEVRON USA INC	Not less than 1/8	846	39
		CRONIN MARY JO	CHEVRON USA INC	Not less than 1/8	846	43
		KURPIL RICHARD ET UX	CHEVRON USA INC	Not less than 1/8	863	594

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51-02014

	CLIFTON CLARA MAE	CHEVRON USA INC	Not less than 1/8	853	426
	EDWARDS GEORGE ET UX	CHEVRON USA INC	Not less than 1/8	853	418
	KYLE DONNA FAE	CHEVRON USA INC	Not less than 1/8	853	449
	CONNER JUDITH MAY	CHEVRON USA INC	Not less than 1/8	853	445
	SCHEIBELHOOD PAUL ET AL	AB RESOURCES LLC	Not less than 1/8	695	629
	AB RESOURCES LLC	NPAR LLC		25	484
	NPAR LLC	Chevron USA INC		756	332
	Chevron USA INC	HG ENERGY II		41	154
	SLOUGH ANITA L ET AL	APPALACHIA, LLC			
		AB RESOURCES LLC	Not less than 1/8	696	7
	AB RESOURCES LLC	NPAR LLC		25	484
	NPAR LLC	Chevron USA INC		756	332
		HG ENERGY II			
	Chevron USA INC	APPALACHIA, LLC		41	154
41)	05-0001-0001-0003-0000	NOBLE ENERGY INC	HG ENERGY II		
		APPALACHIA, LLC	Fee	39	1

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west virginia department of environmental protection

Oil and Gas Conservation Commission
601 57th Street SE, Charleston, WV 25304
304-926-0499 Ext 1274

Barry K. Lay, Chairman
dep.wv.gov

June 25, 2018

Department of Environmental Protection
Office of Oil and Gas
Charleston, WV 25304

RE: Application for Deep Well Permit – API #47-051-02014

COMPANY: HG Energy II Appalachia, LLC

FARM: HG Energy II Appalachia, LLC MND 20 DU

COUNTY: Marshall DISTRICT: Franklin QUAD: Powhatan Point 7 ½'

The deep well review of the application for the above company is **Approved to drill to Point Pleasant for completion.**

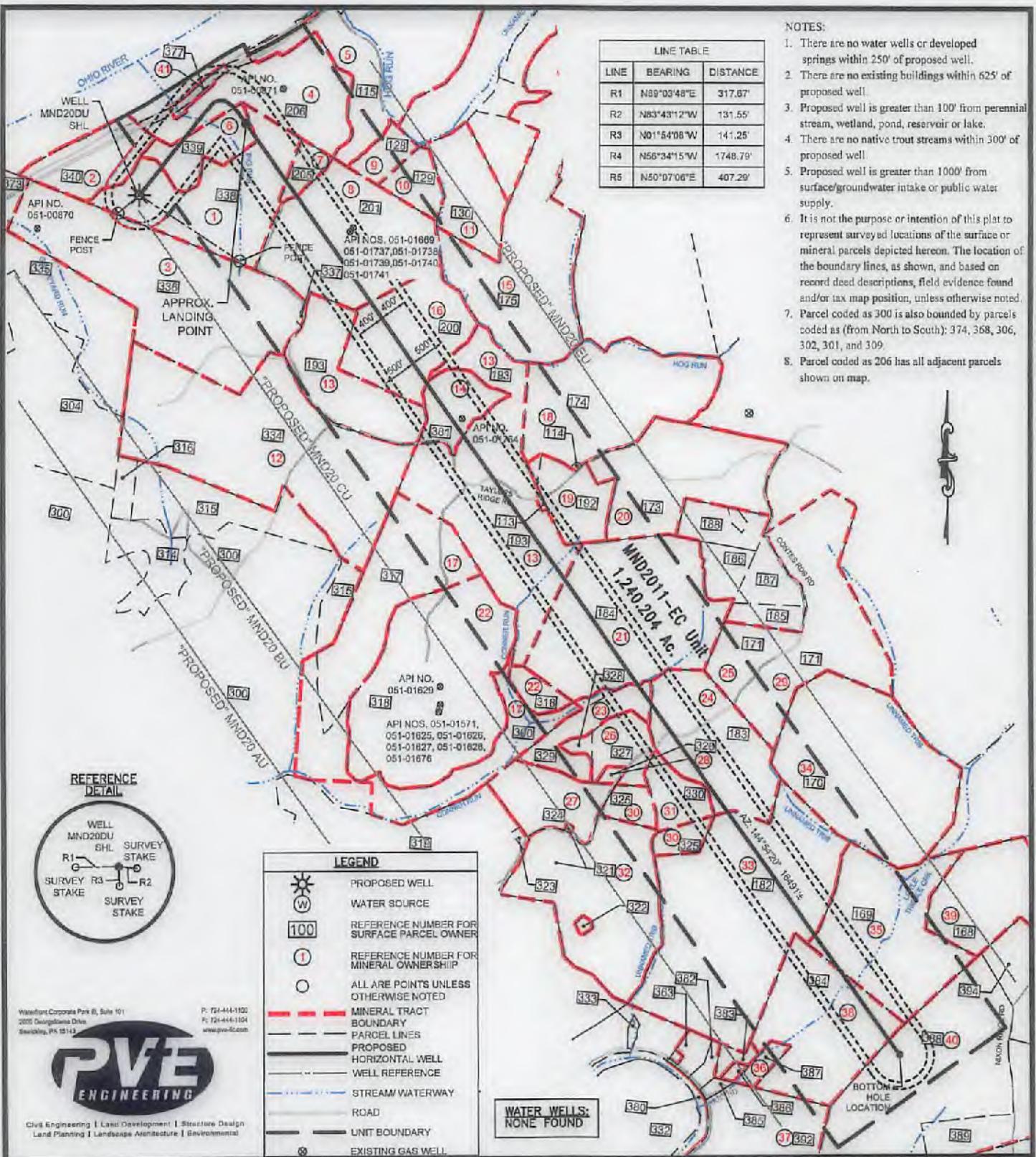
The applicant has complied with the provision of Chapter 22C-9, of the Code of West Virginia, nineteen hundred and thirty-one (1931), as amended, Oil and Gas Conservation Commission as follows:

1. Comments to Notice of Deviation filed? No.
2. Provided a certified copy of duly acknowledged and recorded consent and easement form from all surface owners? Yes
3. Provided a tabulation of all deep wells within one mile of the proposed location, including the API number of all deep wells: none
4. Provided a plat showing that the proposed location is a distance of 400+ feet from the nearest lease line or unit boundary and showing the following wells drilled to or capable of producing from the objective formation within 3,000 feet of the proposed location.

Sincerely,

A handwritten signature in blue ink that reads "Susan Rose".

Susan Rose
Administrator



LINE	BEARING	DISTANCE
R1	N89°03'48"E	317.87'
R2	N83°43'12"W	131.55'
R3	N01°54'08"W	141.25'
R4	N56°34'15"W	1748.79'
R5	N50°07'06"E	407.29'

- NOTES:
1. There are no water wells or developed springs within 250' of proposed well.
 2. There are no existing buildings within 625' of proposed well.
 3. Proposed well is greater than 100' from perennial stream, wetland, pond, reservoir or lake.
 4. There are no native trout streams within 300' of proposed well.
 5. Proposed well is greater than 1000' from surface/groundwater intake or public water supply.
 6. It is not the purpose or intention of this plat to represent surveyed locations of the surface or mineral parcels depicted herein. 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.
 7. Parcel coded as 300 is also bounded by parcels coded as (from North to South): 374, 368, 306, 302, 301, and 309.
 8. Parcel coded as 206 has all adjacent parcels shown on map.

REFERENCE DETAIL



LEGEND

- PROPOSED WELL
- WATER SOURCE
- REFERENCE NUMBER FOR SURFACE PARCEL OWNER
- REFERENCE NUMBER FOR MINERAL OWNERSHIP
- ALL ARE POINTS UNLESS OTHERWISE NOTED
- MINERAL TRACT BOUNDARY
- PARCEL LINES
- PROPOSED HORIZONTAL WELL
- WELL REFERENCE
- STREAM WATERWAY
- ROAD
- UNIT BOUNDARY
- EXISTING GAS WELL

WATER WELLS: NONE FOUND

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FILE #: MND 20 DU

DRAWING #: MND 20 DU

SCALE: 1"=2000'

MINIMUM DEGREE OF ACCURACY: 1/2500

PROVEN SOURCE: U.S.G.S. MONUMENT
OF ELEVATION: H 138: 638.58'

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:

R.P.E.: 21452 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: SHORT CREEK-OHIO RIVER ELEVATION: 1058'

COUNTY/DISTRICT: MARSHALL / FRANKLIN QUADRANGLE: POWHATAN POINT, W. VA./OHIO

SURFACE OWNER: CONSOLIDATION COAL COMPANY/ MURRAY ENERGY ACREAGE: 70.55

OIL & GAS ROYALTY OWNER: CNX GAS COMPANY ACREAGE: 70.55

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: POINT PLEASANT ESTIMATED DEPTH: TVD: 10,700' ± TMD: 27,990 ±

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

DATE: AUGUST 19, 2015 - REV: MAY 11, 2018

OPERATOR'S WELL #: MND 20 DU

API WELL # 47 051 02014 H6A STATE COUNTY PERMIT

PAGE: 1 OF 4

06/29/2018

Bottom Hole is located on topo map 5,594 feet south of Latitude: 39° 50' 00"
 Well is located on topo map 8,503 feet south of Latitude: 39° 52' 30"

Bottom Hole is located on topo map 3,682 feet west of Longitude: 80° 45' 00"
 Well is located on topo map 3,233 feet west of Longitude: 80° 47' 30"

SURFACE HOLE LOCATION (SHL)

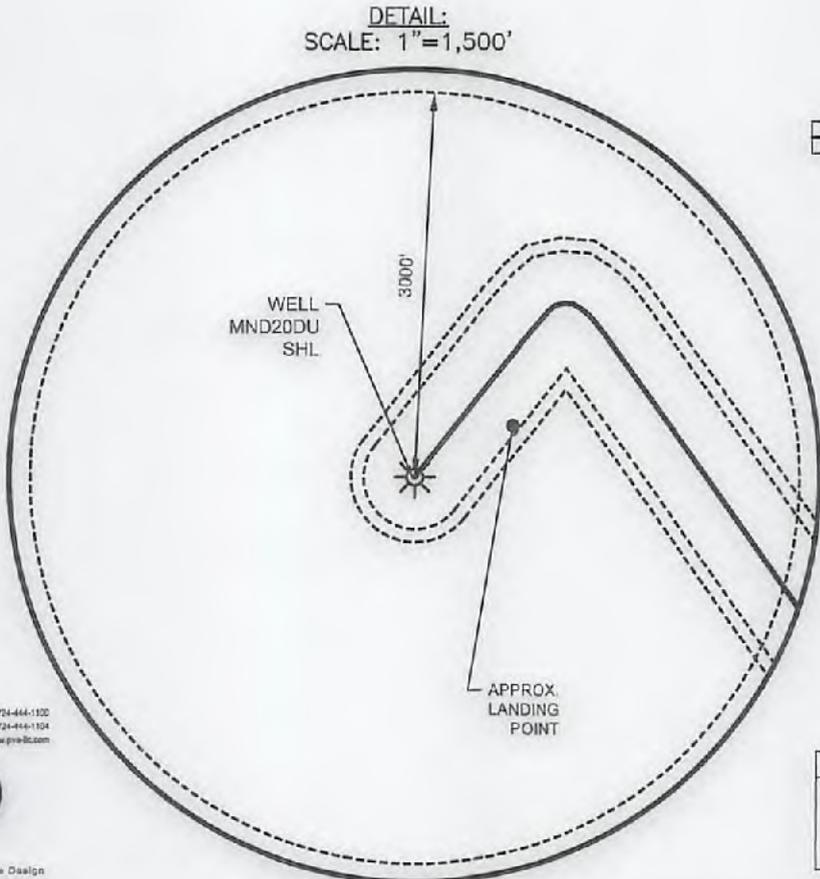
UTM 17 - NAD83
 N: 4411319.587
 E: 516852.608
 NAD27, WV NORTH
 N: 494960.858
 E: 1634129.590
 LAT/LON DATUM-NAD83
 LAT: 39.851731
 LON: -80.802995

APPROX. LANDING POINT

UTM 17 - NAD83
 N: 4411643.822
 E: 517317.408
 NAD27, WV NORTH
 N: 495999.323
 E: 1635672.560
 LAT/LON DATUM-NAD83
 LAT: 39.854643
 LON: -80.797553

BOTTOM HOLE LOCATION

UTM 17 - NAD83
 N: 4407581.492
 E: 520274.459
 NAD27, WV NORTH
 N: 482506.464
 E: 1645153.367
 LAT/LON DATUM-NAD83
 LAT: 39.817976
 LON: -80.763110



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LEGEND	
	TOPO MAP POINT
	TOPO MAP BOTTOM HOLE

FILE #: MND 20 DU
 DRAWING #: MND 20 DU
 SCALE: 1"=2000'
 MINIMUM DEGREE OF ACCURACY: 1/2500
 PROVEN SOURCE OF ELEVATION: U.S.G.S. MONUMENT H 138: 838.56'

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:

R.P.E.: 21452 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



DATE: AUGUST 19, 2015 - REV: MAY 11, 2018
 OPERATOR'S WELL #: MND 20 DU
 API WELL # 47 051 0201446A
 STATE COUNTY PERMIT
 PAGE: 2 OF 4

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

WATERSHED: SHORT CREEK-OHIO RIVER ELEVATION: 1058'
 COUNTY/DISTRICT: MARSHALL / FRANKLIN QUADRANGLE: POWHATAN POINT, W. VA./OHIO
 SURFACE OWNER: CONSOLIDATION COAL COMPANY/ MURRAY ENERGY ACREAGE: 70.55
 OIL & GAS ROYALTY OWNER: CNX GAS COMPANY ACREAGE: 70.55

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: POINT PLEASANT ESTIMATED DEPTH: TVD: 10,700' ± TMD: 27,990±
 WELL OPERATOR: HG ENERGY II APPALACHIA, LLC DESIGNATED AGENT: DIANE C. WHITE
 Address: 5260 DUPONT ROAD Address: 5280 DUPONT ROAD
 City PARKERSBURG State WV Zip Code 26101 City PARKERSBURG State WV Zip Code 26101

06/29/2018

113 ZION M.E. CHURCH
 114 GRAY ROBERT WILLIAM - LIFE
 115 CONSOLIDATION COAL COMPANY, ET AL.
 128 CONSOLIDATION COAL COMPANY, ET AL.
 129 CONSOLIDATION COAL COMPANY, ET AL.
 130 CONSOLIDATION COAL COMPANY, ET AL.
 168 CNX LAND RESOURCES INC.
 169 AEP GENERATION RESOURCES, INC.
 170 AEP GENERATION RESOURCES, INC.
 171 AEP GENERATION RESOURCES, INC.
 172 FASOULETOS ANDREW M. ET. AL.
 174 GRAY ROBERT WILLIAM - LIFE
 175 CONSOLIDATION COAL COMPANY, ET AL.
 182 AEP GENERATION RESOURCES, INC.
 183 AEP GENERATION RESOURCES, INC.
 184 CONSOLIDATION COAL COMPANY, ET AL.
 185 HARTLEY PEGGY S.
 186 POTTS JAMES D. ET. LX.
 187 POTTS JAMES D. ET. LX.
 188 POTTS JAMES D. ET. LX.
 192 BARNHART THOMAS K. ET. LX.
 193 CONSOLIDATION COAL COMPANY, ET AL.
 200 CONSOLIDATION COAL COMPANY
 201 CONSOLIDATION COAL COMPANY
 205 CONSOLIDATION COAL COMPANY
 208 CONSOLIDATION COAL COMPANY
 300 OHIO POWER CO.
 301 CONSOLIDATION COAL COMPANY
 302 CONSOLIDATION COAL COMPANY
 303 CONSOLIDATION COAL COMPANY
 304 CONSOLIDATION COAL COMPANY
 305 OHIO POWER CO.
 307 CNX GAS COMPANY LLC.
 308 CONSOLIDATION COAL COMPANY
 309 WV ECONOMIC DEV. AUTHORITY
 310 CONSOLIDATION COAL COMPANY
 311 CONSOLIDATION COAL COMPANY
 314 CONSOLIDATION COAL COMPANY
 315 CONSOLIDATION COAL COMPANY
 316 CONSOLIDATION COAL COMPANY
 317 CONSOLIDATION COAL COMPANY
 318 CONSOLIDATION COAL COMPANY
 319 OHIO POWER CO.
 320 SANCHEZ GENEVA BASSETT
 321 OHIO POWER CO.
 322 AEP GENERATION RESOURCES INC.
 323 AEP GENERATION RESOURCES INC.
 324 CONSOLIDATION COAL COMPANY
 325 AEP GENERATION RESOURCES INC.

TAX MAP NO. 05-0002-0008-0001-0000
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326 AEP GENERATION RESOURCES INC.
 327 AEP GENERATION RESOURCES INC.
 328 CONSOLIDATION COAL COMPANY
 329 CONSOL MINING COMPANY LLC.
 330 AEP GENERATION RESOURCES INC.
 331 GATTS RICHARD L - LIFE
 332 MILLER EDWIN C.
 333 GATTS RICHARD L - LIFE
 334 MURRAY ENERGY CO LAND DEPT.
 335 CONSOLIDATION COAL COMPANY
 336 CONSOLIDATION COAL COMPANY
 337 CONSOLIDATION COAL COMPANY
 338 CONSOLIDATION COAL COMPANY
 339 CONSOLIDATION COAL COMPANY
 340 CONSOLIDATION COAL COMPANY
 363 RUCKMAN SHELDON R. ET. AL.
 366 OHIO POWER COMPANY
 369 OHIO POWER COMPANY
 371 OHIO POWER COMPANY
 372 CONSOLIDATION COAL COMPANY
 374 CONSOLIDATION COAL COMPANY
 377 CONSOLIDATION COAL COMPANY
 380 WV DIVISION OF NATURAL RESOURCES
 381 CONSOLIDATION COAL COMPANY
 382 RUCKMAN MARVIN E. ET. UX.
 383 MAXWELL WILLIAM L. JR.
 384 JPM PROPERTIES LLC.
 385 RUCKMAN MARVIN E.
 386 MAXWELL WILLIAM JR.
 387 JPM PROPERTIES LLC.
 388 HOLSTINE BERNARD W. & ROXANN L.
 389 HOLSTINE BERNARD W. & ROXANN L.
 390 LEGG JAMES R. EST.
 391 MCCLINTOCK PATRICIA A.
 392 RUCKMAN JESSIE GLADYS - LIFE
 393 LEGG JEFFERY L.
 394 ANDERSON RHONDA MARIE

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 TAX MAP NO. 05-0009-0001-0000-0000
 TAX MAP NO. 05-0009-0002-0001-0000
 TAX MAP NO. 05-0004-0014-0001-0000

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LEGEND	
100	REFERENCE NUMBER FOR SURFACE PARCEL OWNERSHIP
1	REFERENCE NUMBER FOR MINERAL OWNERSHIP

FILE #: MND 20 DU
 DRAWING #: MND 20 DU
 SCALE: 1"=2000'
 MINIMUM DEGREE OF ACCURACY: 1/2500
 PROVEN SOURCE U.S.G.S. MONUMENT
 OF ELEVATION: H 138: 638.58'

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.: 21452 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



DATE: AUGUST 19, 2015 - REV: MAY 11, 2018

OPERATOR'S WELL #: MND 20 DU

API WELL # 47 051 02014H6A
 STATE COUNTY PERMIT

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

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COUNTY/DISTRICT: MARSHALL / FRANKLIN QUADRANGLE: POWHATAN POINT, W. VA./OHIO

SURFACE OWNER: CONSOLIDATION COAL COMPANY/ MURRAY ENERGY ACREAGE: 70.55

OIL & GAS ROYALTY OWNER: CNX GAS COMPANY ACREAGE: 70.55

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: POINT PLEASANT ESTIMATED DEPTH: TVD: 10,700' ± TMD: 27,990±

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

06/29/2018

HG Plat Number	MPID	Royalty Owner	Surface Ref. Num.
1	05-0001-0003-0000-0000	Belinda Eddy Ika Belinda Page Hoover, a married woman dealing in her sole and separate property	338
		Dara Marner and Douglas D. Marner, both individually and as wife and husband	
		Jessica McHabb Ika Jessica Faye Hoover, a married woman dealing in her sole and separate property	
		Cheryl Sullivan, a single woman	
		George H. Wells and Nancy Eklund Wells, both individually and as husband and wife	
		William C.M. Wilson and Hiram C. Wilson, as Trustees of The Nancy L. Wilson Revocable Trust	
		Wayland W. Bowser, a married man dealing in his sole and separate property	
		Barbara G. Mathews, by Gay L. Mathews, Her Attorney in Fact	
		HG Energy, LLC	
2	05-0001-0002-0001-0000	HG Energy, LLC	340
3	05-0001-0010-0000-0000	Ruth Ann Ferris	335
		Larry F. Jefferson	
		Noble Marcellus, LP	
		Anascape Holdings, LLC	
		HG Energy, LLC	
4	05-0001-0001-0000-0000	HG Energy, LLC	335
5	04-0014-0002-0000-0000	HG Energy, LLC	
6	05-0001-0002-0000-0000	HG Energy, LLC	339
7	05-0001-0004-0000-0000	HG Energy, LLC	205
8	05-0001-0005-0000-0000	Howard T. Conser	201
		Mary L. Whittington	
		Ruth Ann Ferris	
		Larry F. Jefferson	
		Cheryl Sullivan	
		Barbara G. Mathews, by Gay L. Mathews,	
		Belinda Eddy Ika Belinda Page Hoover	
		Sarah Knabenshue, married	
		Dara Marner and Douglas D. Marner	
		Jessica McHabb Ika Jessica Faye Hoover	
		George H. Wells and Nancy Eklund Wells	
		William C.M. Wilson and Hiram C. Wilson	
		Wayland W. Bowser	
9	05-0001-0006-0000-0000	Susan Kay Flowers & Robert L. Flowers	128
		Carol Lynn Gill	
		William Gary & Nancy L. Messner	
		George Michael & Pamela S. Messner	
		Ethel Marie Malson	
		Martha Jane Brown	
10	05-0001-0006-0001-0000	Susan Kay Flowers & Robert L. Flowers	129
		Carol Lynn Gill	
		William Gary & Nancy L. Messner	
		George Michael & Pamela S. Messner	
		Ethel Marie Malson	
		Martha Jane Brown	
11	04-0014-0012-0000-0000	Consolidation Coal Company, et al	130
12	05-0002-0003-0000-0000	HG Energy, LLC	334
13	05-0002-0005-0000-0000	HG Energy, LLC	193
14	05-0002-0004-0000-0000	HG Energy, LLC	381
15	04-0014-0011-0000-0000	HG Energy, LLC	175
16	05-0001-0007-0000-0000	John Alfred Yutsey and Susan Yutsey, both individually and as husband and wife	200
		Glen A. Yutsey aka Glen Albert Yutsey, and Mary L. Yutsey, both individually and as husband and wife	
		Yolanda Katherine Anderson and Raymond H. Anderson, both individually and as wife and husband	
		NOBLE ENERGY INC	
17	05-0005-0003-0000-0000, 05-0005-0001-0000-0000	HG Energy, LLC	300
18	05-0002-0006-0000-0000, 05-0002-0007-0000-0000	Robert W. Gray, Jr., et al	317
19	05-0002-0008-0000-0000, 05-0002-0009-0001-0000	Thomas K. Barnhart	192

20	05-0002-0009-0000-0000	Andrew M. Fasouletos, et ux	173
		Michael Andrew Fasouletos	
		Tera Marie Sticklin	
21	05-0002-0012-0000-0000	Westbank Bank, Trustee John T. Gallaher EST	184
		James D. Potts and Nancy C. Potts	
22	05-0005-0002-0000-0000	Margaret Games	318
		Elizabeth Patterson	
		Charles J. Wiesner	
		John Wiesner	
		Kenneth Schmitt	
		Mary Ellen Sedon	
		Alfred Kaczorowski, Jr., & Sharon M. Kaczorowski, his wife	
23	05-0005-0009-0001-0000	HG Energy, LLC	329
24	05-0005-0011-0000-0000	AEP Generation Resources Inc. and Kentucky Power Company	183
25	05-0002-0013-0001-0000	AEP Generation Resources Inc. and Kentucky Power Company	171
26	05-0005-0009-0000-0000	AEP Generation Resources Inc. and Kentucky Power Company	327
27	05-0005-0006-0001-0000	AEP Generation Resources Inc. and Kentucky Power Company	324
28	05-0005-0008-0000-0000	AEP Generation Resources Inc. and Kentucky Power Company	326
29	05-0002-0013-0003-0000	AEP Generation Resources Inc. and Kentucky Power Company	171
30	05-0005-0007-0000-0000	AEP Generation Resources Inc. and Kentucky Power Company	325
31	05-0005-0011-0001-0000	AEP Generation Resources Inc. and Kentucky Power Company	330
32	05-0005-0005-0000-0000	AEP Generation Resources Inc. and Kentucky Power Company	321
33	05-0005-0012-0000-0000	AEP Generation Resources Inc. and Kentucky Power Company	182
34	05-0004-0001-0000-0000	AEP Generation Resources Inc. and Kentucky Power Company	170
35	05-0004-0015-0000-0000	AEP Generation Resources Inc. and Kentucky Power Company	169
36	05-0004-0017-0000-0000	Terry Holman	387
37	05-0000-0001-0000-0000	Jessie Gladys Ruckman Et Al	392
38	05-0004-0016-0000-0000	Terry Holman	384
39	05-0001-0013-0000-0000	MCCLEINTOCK DALE ET UX	168
40	05-0004-0014-0000-0000	MILLER CHARLES W	388
		PARSONS PAUL ET UX	
		RUSSELL SHARON LYN	
		HUFF TIMOTHY ET UX	
		ARNOLD LLOYD C ET UX	
		CRONIN MARY JO	
		KURPIL RICHARD ET UX	
		CLIFTON CLARA MAE	
		EDWARDS GEORGE ET UX	
		KYLE DONNA FAE	
		CONNER JUDITH MAY	
		SCHEIBELHOOD PAUL ET AL	
		SLOUGH ANITA L ET AL	
41	05-0001-0001-0003-0000	HG Energy, LLC	377

LEGEND	
100	REFERENCE NUMBER FOR SURFACE PARCEL OWNERS
1	REFERENCE NUMBER FOR MINERAL OWNERSHIP

FILE #: MND 20 DU
 DRAWING #: MND 20 DU
 SCALE: 1"=2000'
 MINIMUM DEGREE OF ACCURACY: 1/2500
 PROVEN SOURCE U.S.G.S. MONUMENT OF ELEVATION: H 138: 838.58'

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.: 21452 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: SHORT CREEK-OHIO RIVER ELEVATION: 1058'

COUNTY/DISTRICT: MARSHALL / FRANKLIN QUADRANGLE: POWHATAN POINT, W. VA./OHIO

SURFACE OWNER: CONSOLIDATION COAL COMPANY/ MURRAY ENERGY ACREAGE: 70.55

OIL & GAS ROYALTY OWNER: CNX GAS COMPANY ACREAGE: 70.55

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: POINT PLEASANT ESTIMATED DEPTH: TVD: 10,700'± TMD: 27,990'±

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

06/29/2018

51-02014

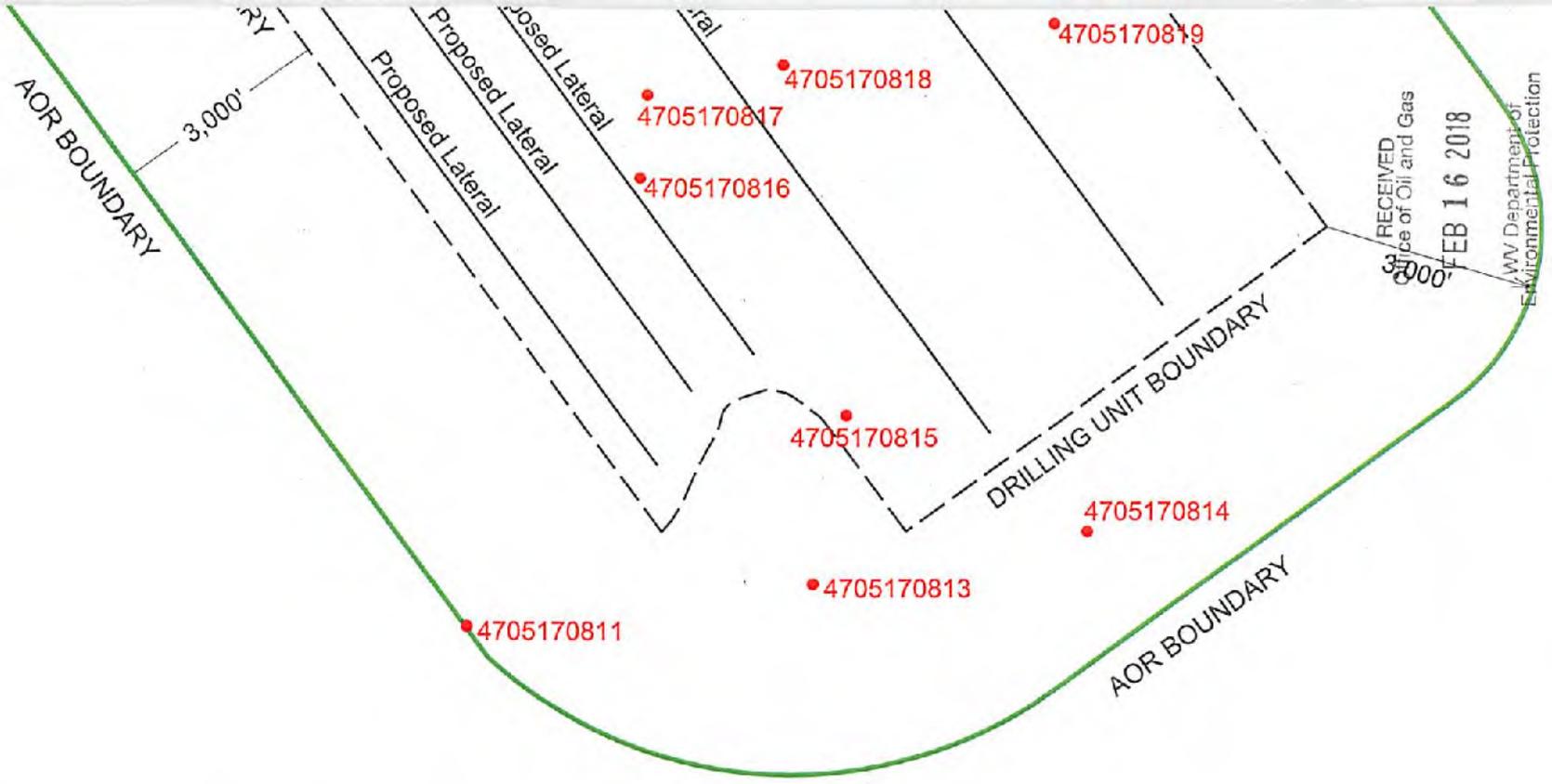


NOTE:
See Attached Spreadsheet for Well Data

DATA SOURCES:
WVGES Data Disk - 2017
WVDEP Web Site



SI-02014



NOTE:
 NO KNOWN DEEP WELLS ARE LOCATED WITHIN 3,000'
 OF PROPOSED WELL BORES OR DRILLING UNIT.

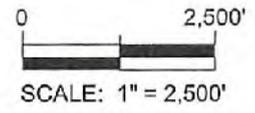


Area of Review for:

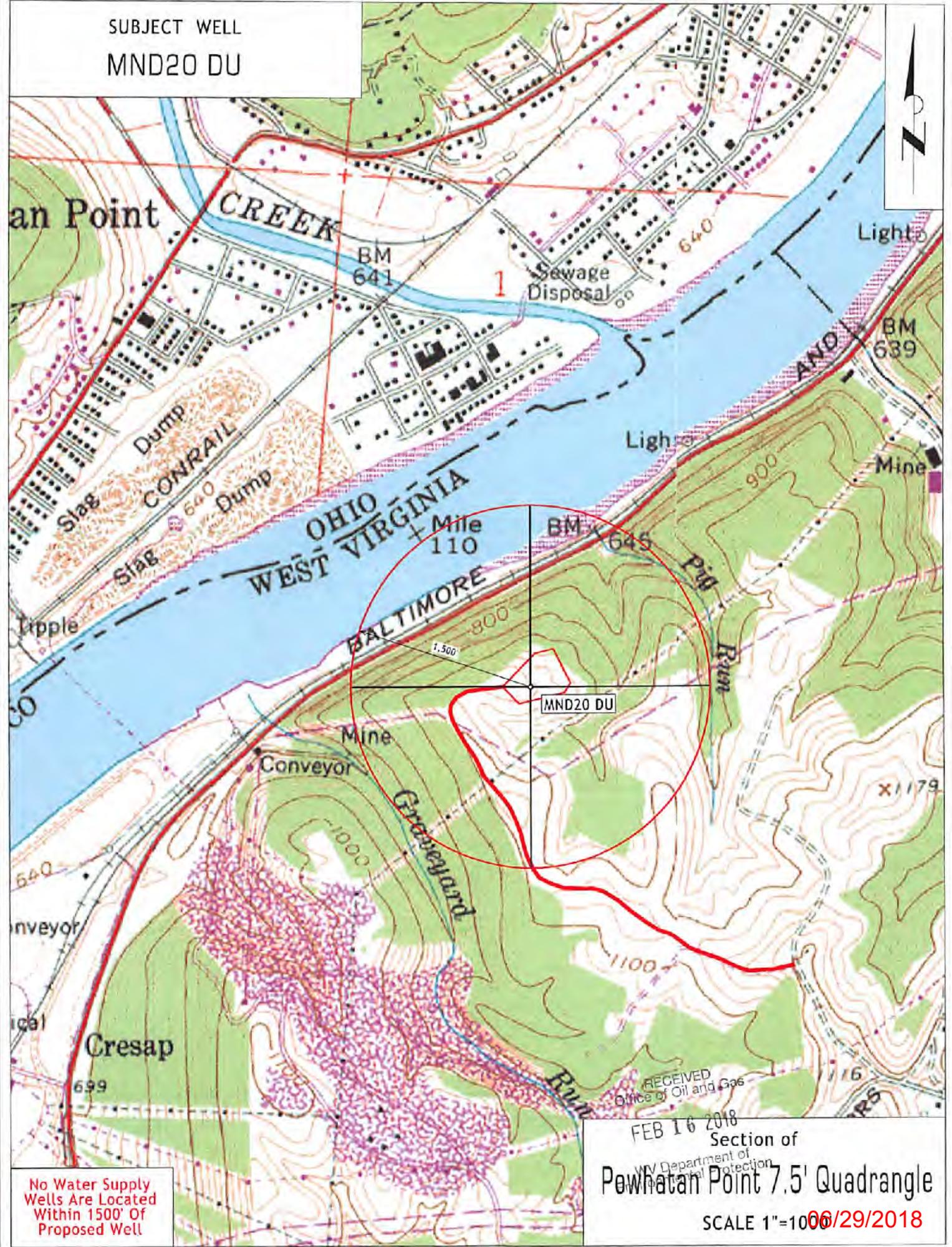
MND20 PAD

- MND20 AU Wellbore
- MND20 BU Wellbore
- MND20 CU Well bore
- MND20 DU Wellbore
- MND20 EU Wellbore

Franklin District, Marshall County, W.Va.



SUBJECT WELL
MND20 DU



No Water Supply Wells Are Located Within 1500' Of Proposed Well

RECEIVED
Office of Oil and Gas
FEB 16 2018
Section of
WV Department of
Environmental Protection
Pewhatan Point 7.5' Quadrangle
SCALE 1"=1000' 06/29/2018

FORM

THIS EASEMENT AGREEMENT (this "**Agreement**") dated as of the 1ST day of ~~DECEMBER~~ 2017 (the "**Effective Date**"), by and between McElroy Coal Company, a Delaware corporation and The Marshall County Coal Company, a Delaware corporation whose address is c/o Murray American Energy, 46226 National Road, St. Clairsville, Ohio 43950 ("**Grantor**"), and HG ENERGY II APPALACHIA, LLC., a Delaware limited liability company, whose address is 5260 Dupont Road, Parkersburg, WV 26101 ("**Grantee**") (each a "**Party**," and collectively the "**Parties**").

WITNESSETH:

WHEREAS, pursuant to the following agreements: Memorandum of Surface Use Agreement dated effective as of September 30, 2011, and recorded in the County Clerk's office of Marshall County, West Virginia; Memorandum of First and Second Amendments to Surface Use Agreement dated effective as of November 15, 2013 and recorded in the County Clerk's office of Marshall County, West Virginia; and the Corrective Addendum to Second Amendment to Surface Use Agreement dated effective November 15, 2013 (to be recorded in the County Clerk's office of Marshall County, West Virginia), CNX Gas Company LLC, *et al.* ("**CONSOL Granting Entities**") made certain surface rights owned or controlled by the CONSOL Granting Entities available for use by Grantee, as successor in title to Noble Energy, Inc., in connection with the exploration, production and development of certain oil and gas rights (all of the foregoing being hereinafter collectively referred to as the "**SUA**"); and

WHEREAS, by way of a series of mergers, referenced by State of Delaware Certificate of Merger dated November 19, 2013, and recorded in the County Clerk's office of Marshall County, West Virginia; and State of Delaware Certificate of Merger dated November 25, 2013, and recorded in the County Clerk's office of Marshall County, West Virginia, certain of the CONSOL Granting Entities were merged with and into Grantor or affiliates or subsidiaries of Grantor, and, as a result thereof, (a) Grantor owns or controls surface rights in and to the Premises described in Section 1(B), and (b) Grantor is a successor party to said certain CONSOL Granting Entities under the SUA (Grantor and/or one or more Grantor affiliates being a "**Coal Party**" and/or "**Coal Parties**" thereunder); and

WHEREAS, Grantee (being a "**Gas Party**" under the SUA) desires to obtain an exclusive, limited easement to use the Premises for certain purposes provided for under the SUA, and Grantor is willing to grant Grantee such easement, under the terms and subject to the conditions of this Agreement.

NOW, THEREFORE, for good and valuable consideration, the sufficiency and adequacy of which are acknowledged, and intending to be legally bound, the Parties agree as follows:

1. **EASEMENT GRANT**. Grantor grants to Grantee, subject to the terms and conditions herein:
 - A. **TYPE**: an exclusive easement (the "**Easement**").
 - B. **BURDENED PREMISES**: located on, under and through a portion of those lands situate in Franklin District, Marshall County, West Virginia, being the same land conveyed to Grantor by Quitclaim Deed, Assignment and Bill of Sale, dated November 25, 2013, of record in the Office of the Recorder of the aforesaid County in Deed Book 811, Page 0001,

containing 245.40 acres, more or less, being Tax Maps 05-0001-0003-0000-0500, 05-0001-0010-0000-0500 and 05-0002-0005-0000-0500, as more particularly described on Exhibit "A" attached hereto and made a part hereof (the "Premises").

C. **RIGHTS:** to construct, reconstruct, install, lay, use, repair, maintain, improve, alter, replace, operate, inspect, service, and remove roads, pad sites, drilling locations and other surface facilities, and water pipelines reasonably necessary for such Grantee to develop the Oil and Gas Rights with respect to certain subsurface strata underlying the Premises or lands of others (collectively, the "Facilities").

D. **DESCRIPTION OF FACILITIES:**¹

ACCESS ROAD(S)

1. **Number:** one (1).
2. **Width:** 75 feet.
3. **Length:** 4,500 feet.

WELL PAD(S)

1. **Number:** one (1).
2. **Width:** 500 feet.
3. **Length:** 600 feet.

E. **USES:** for ingress and egress, and construction of a well pad, and for no other purposes.

F. **EASEMENT ACCESS RIGHTS:** with the right to access the Facilities from neighboring, coterminous or adjacent lands through and across such areas of the Premises as may be approved by Grantor from time to time.

G. **LOCATION:** The location, width and other bounds of the Easement and the Facilities are shown on Exhibit A, and the Easement consists of a strip of land containing up-to seventy-five (75') feet (thirty-seven and one half (37.5') feet on each side) in width for the access road, as well as 300,000 square feet for the well pad as shown on Exhibit A (the "Easement Area").

2. **EASEMENT REQUIREMENTS.**

A. **SURVEY PLAT OF FACILITIES.** Grantee shall, at Grantee's expense, deliver an as-built/as-drilled plat/survey depicting the location(s) of the Facilities to Grantor promptly upon completion of construction of the Facilities. Grantee shall promptly furnish to Grantor, upon Grantor's request, at Grantee's expense, any existing or future information, other surveys and other data and information with respect to the Premises, the Easement, the Facilities, or Grantee's Operations that Grantee, now or in the future, has in its possession or control that is needed or useful in order for Grantor to obtain or to comply with any

permits or approvals for Grantor's operations on the Premises or any neighboring, coterminous or adjacent lands or to comply with any Applicable Laws.

- B. **TAXES.** Grantee shall pay all taxes and any increases assessed by any governmental authorities that are directly attributable to the Easement, the Facilities, or any Grantee Operations or related improvements of Grantee.
 - C. **ACCESS.** In addition to those rights which are inherent with the ownership of the Premises, Grantor shall have access to the Easement from time to time for any purpose.
 - D. **DIG NOTICE.** Grantee agrees to give Grantor written notice not less than three (3) days prior to the commencement of the initial construction and prior to any digging on the Premises.
 - E. **MARKERS.** Readily visible markers of the Facilities shall be installed and maintained by Grantee, and to the extent that the Facilities constitute pipelines, such markers shall be at intervals not to exceed fifty (50) feet along the length of such pipeline(s).
 - F. **REIMBURSEMENT OF CERTAIN COSTS.** Grantee shall reimburse Grantor for any costs associated with the maintenance of that portion of the Premises forming the Easement Area (on the basis of usage or other allocation methodology reasonably calculated to reflect Grantor's use of the Easement Area in proportion to the total use of the Premises by the Parties) and/or any direct or third party costs payable under permits and any third party agreements burdening the Premises.
3. **EASEMENT PAYMENT.** This Easement grant shall be royalty-free.
4. **TERM.** This Agreement and all rights granted herein shall terminate automatically (except those provisions that expressly survive expiration or termination), and the Easement shall automatically revert to Grantor, upon the earlier to occur of the following events: (a) thirty-six (36) months after the Effective Date if Grantee has not commenced the installation of the Facilities on the Premises by such date; (b) termination of Grantor's surface rights in and to the Premises; (c) termination of Grantee's operations with respect to the Easement and the Facilities; (d) any breach by Grantee under this Agreement that remains uncured after the applicable cure period; or (e) if any creditor or lender of Grantee exercises any rights against the Facilities or the Easement grant.

Upon Grantor's request, Grantee shall execute any instruments terminating the Easement, transferring the Easement to Grantor, or its designee, or waiving or releasing any rights of Grantee herein consistent with the foregoing. All obligations of Grantee in this Section 4 shall survive expiration or termination of this Agreement.

5. **GENERAL TERMS AND CONDITIONS.** All rights and benefits conveyed or created pursuant to this Agreement shall be subject to the following general terms, provisions and conditions:
- A. **Joint Use.** Grantor shall have the right to fully use and enjoy the Premises for Grantor Operations, subject only to the terms and conditions of this Agreement. Grantor reserves the right to limit any Grantee Operations that would unreasonably interfere with Grantor

Operations. Subject to the terms of this Agreement, all Grantee Operations shall be performed in such a manner as not to unreasonably interfere with any Grantor Operations, and all Grantor Operations shall be performed in such a manner as not to unreasonably interfere with any Grantee Operations.

- B. **Coordination.** Grantee shall coordinate all Grantee Operations with Grantor Operations. The Parties acknowledge that as part of a coordination process specified in Section 5(b) of the SUA, (i) the Grantor will work with Grantee to locate any Grantee wells on the Premises in pillars and barriers to minimize conflicts with Grantor's mining operations, and (ii) Grantor will work with Grantee to locate the Facilities in locations reasonably likely to minimize the likelihood of any required relocation. Each Party, promptly upon becoming aware of any potential operational conflict relative to the Premises, shall provide written notice to the other Party whose Operations will be or are likely to be impacted by such notifying Party's planned operations in, on or under the Premises.
- C. **Use Requirements.** Grantee, in conducting Grantee Operations, shall comply with the reasonable requirements (as the same may be amended from time to time) of Grantor, including safety plans and programs, operating hours and other relevant regulations and procedures. Notwithstanding the foregoing requirements, each Party shall be solely responsible for initiating, maintaining, implementing, controlling and supervising all health, safety and environmental precautions, rules and programs in connection with their respective Operations.
- D. **Permits.** Each Party shall be responsible for obtaining all necessary permits, title reports, licenses and bonds related to their respective Operations. Each Party, to the extent practicable, shall cooperate and support the other Party's permitting and regulatory approval activities pertaining to the Premises and, in connection therewith, but subject to the provisions of Section 11, the Parties agree to cooperate in the resolution of all regulatory proceedings and litigation where the rights or obligations of the Parties may be implicated.
- E. **Compliance with Permits and Agreements; Maintenance.** Grantee shall comply with all applicable permits and agreements burdening the interests of Grantor in the Premises of which Grantee has been notified, and Grantee shall maintain and repair its roads, rights of way, drill sites and other surface facilities, in each case, located on the Premises, in accordance with the terms of all such permits and agreements.
- F. **Grantee Activities; Grantor Property.** Grantee shall: (i) perform all Grantee Operations in a good and workmanlike manner, in accordance with good and safe construction methods, standards and practices and in compliance with Applicable Laws; (ii) promptly (a) repair any damage to the Premises or any other property of Grantor (collectively, the "Grantor Property") affected by Grantee Operations, or (b) if such repairs are impossible or impracticable, replace any such Grantor Property that is personal property or a fixture, in each case, in order that the physical condition of the Grantor Property is approximately the same following such Grantee Operations as it was prior thereto; (iii) keep the Grantor Property free and clear of any mechanics', materialman's or other construction liens or, if

any such lien is placed on the Grantor Property, cause any such lien to be released or transferred to security bond within twenty (20) days following the filing thereof against any of the Grantor Property; and (iv) pay for all costs of such Grantee Operations at its sole cost and expense. Notwithstanding anything in this Agreement to the contrary, Grantor shall not have any liability for any damage, alteration, change or modification of any Facilities or other property of Grantee caused by any subsidence relating to mining operations in, on or under the Premises. For the avoidance of doubt, the obligations contained in this Section 5(F) shall survive the expiration or termination of this Agreement.

- G. **Relocation.** If at any time the location of any Facilities (or wells associated therewith) or Grantee Operations is reasonably expected by Grantor to interfere with its present or planned Grantor Operations (whether such operations or uses relate to Grantor's coal, surface, oil, gas or otherwise), then upon the written request of Grantor, Grantee shall, in coordination with Grantor, (i) subject to Sections 5(H) and 5(I) with respect to wells, relocate such interfering Facility and/or Grantee Operation to another location within the Premises (which location may be within a Coal Area or within a Non-Coal Area), and (ii) Grantor shall deliver to Grantee an easement with respect to such new location that is materially consistent with the Easement and on substantially the same terms and conditions. Grantor's right to cause Grantee to relocate the Easement (or the Facilities or Grantee Operations permitted hereunder), but excluding in all cases any well, may not be exercised more than once with respect to this Agreement and/or the Facilities or Grantee Operations permitted hereunder unless the costs of relocation is borne by Grantor. Except to the extent provided in the preceding sentence and in Section 5(I), all costs and expenses of Grantee associated with any such relocation shall be borne 100% by Grantee. For the avoidance of doubt, the relocation obligations contained in this Section 5(G) shall survive the expiration or termination of this Agreement.
- H. **Coal Areas.** Subject to the terms hereof, Grantee shall have the right to locate and drill oil and gas wells attributable to the Oil and Gas Rights in the Coal Areas of the Premises.
1. Prior to drilling any such well in a Coal Area of the Premises, Grantee shall obtain the written consent of Grantor to drill such well in such Coal Area. Upon the receipt of a written request from Grantee (which request shall include the proposed drilling location for such well), Grantor shall elect one of the following options with respect to such well: (a) consent to such well and approve the proposed location, and thereafter such well shall be considered a "**Protected Well**" for purposes of Section 5(I)(2); (b) consent to such well but not approve the proposed location of such well (a "**Non-Protected Well**"), in which case Grantee shall be entitled to drill such Non-Protected Well on such proposed location, but the provisions of Section 5(H)(2) shall apply to such Non-Protected Well, its associated reserves and any related Facilities; or (c) not consent to such well and not approve the proposed location; *provided* that if Grantor elects the option set forth in subsection (c) of this Section 5(H)(1), Grantor shall meet with Grantee in order to attempt to locate a mutually acceptable location for such proposed well (which location, for the

avoidance of doubt, may or may not result in such well, when drilled, being a "Protected Well" for purposes of Section 5(I)(2)).

2. If Grantor requests that a Non-Protected Well be relocated pursuant to Section 5(G), Grantee shall properly plug and abandon, at its sole cost and expense and without compensation from Grantor, such Non-Protected Well for mine through in accordance with Applicable Law. For the avoidance of doubt, if Grantor mines through Grantee's Non-Protected Well, Grantee will bear 100% of the loss of the value of such Non-Protected Well without any compensation from such Grantor.
 3. For the avoidance of doubt, the obligations contained in this Section 5(H) shall survive the expiration or termination of this Agreement.
- I. **Non-Coal Areas.** Subject to the terms hereof, Grantee shall have the right to locate and drill oil and gas wells attributable to the Oil and Gas Rights in the Non-Coal Areas of the Premises.
1. Any well that is drilled by Grantee on a location that was in a Non-Coal Area at the time such well was drilled is referred to herein as a "**Protected Well**".
 2. If Grantor requests that a Protected Well be relocated pursuant to Section 5(G), the following provisions will apply: (a) Grantee shall properly plug and abandon such Protected Well for mine through in accordance with Applicable Law, (b) Grantor shall reimburse Grantee for 100% of the reasonable and documented costs and expenses associated with such plugging and abandonment operations, (c) Grantor shall compensate Grantee for the value of such plugged and abandoned Protected Well and the proved developed producing oil and gas reserves lost due to such Coal Party's mining operations which caused the relocation of such Protected Well, and (d) subject to the provisions of Schedule 5(i) of the SUA, Grantor shall compensate Grantee for the value of the lease(s) underlying such plugged and abandoned Protected Well. The value of such Protected Well, the proved developed producing oil and gas reserves and the underlying lease(s), in each case, for which the Gas Party is entitled to compensation pursuant to this Section 5(I) shall be determined pursuant to the procedures set forth on Schedule 5(i) of the SUA.
 3. For the avoidance of doubt, the obligations contained in this Section 5(I) shall survive the expiration or termination of this Agreement.
6. **INDEPENDENT CONTRACTORS.** This Agreement does not make either Party an employee, contractor, partner, joint venturer, agent or representative of the other Party.
 7. **SECURITY.** Grantee shall be responsible for Grantee Parties' security, including the security of all Grantee Parties' property brought onto, located at, or constructed in or upon the Premises.
 8. **PROHIBITED ACTIVITIES.** Grantee shall not permit animals, alcohol, drugs, firearms, hunting or any unlawful activity of any kind at the Premises. Grantee shall not dump or dispose of any waste or refuse in, on or under any portion of the Premises. Grantee shall not permit any

operation or activity to be conducted at the Premises except as otherwise specifically permitted or otherwise required in this Agreement.

9. NO CONVEYANCE; NO WARRANTIES OF TITLE; DISCLAIMERS.

A. No warranty of title is made by Grantor with respect to the Premises, whether express implied or statutory, and Grantee acknowledges that the Facilities will be constructed, and Grantee Operations undertaken, at Grantee's sole risk.

B. GRANTOR MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESS, STATUTORY OR IMPLIED, AND EXPRESSLY DISCLAIMS ALL LIABILITY AND RESPONSIBILITY FOR ANY REPRESENTATION, WARRANTY, STATEMENT OR INFORMATION MADE OR COMMUNICATED (ORALLY OR IN WRITING) TO GRANTEE OR ANY OF ITS AFFILIATES, EMPLOYEES, AGENTS, CONSULTANTS OR REPRESENTATIVES (INCLUDING ANY OPINION, INFORMATION, PROJECTION OR ADVICE THAT MAY HAVE BEEN PROVIDED TO GRANTEE BY A MEMBER OR AFFILIATE OF GRANTOR). GRANTOR HAS NOT AND WILL NOT MAKE ANY REPRESENTATION OR WARRANTY REGARDING ANY MATTER OR CIRCUMSTANCE RELATING TO (I) THE QUALITY OF, OR SUITABILITY FOR ANY PURPOSE OF, THE PREMISES, (II) THE CONTINUED AVAILABILITY OF THE PREMISES, OR (III) ANY CONDITION, ENVIRONMENTAL OR OTHERWISE, RELATING TO THE PREMISES, AND NOTHING IN THIS AGREEMENT OR OTHERWISE SHALL BE CONSTRUED AS SUCH A REPRESENTATION OR WARRANTY. GRANTEE SHALL BE DEEMED TO BE USING THE PREMISES "AS IS" AND "WHERE IS" WITH ALL FAULTS FOR PURPOSES OF ITS CONDITION, ENVIRONMENTAL OR OTHERWISE, AND GRANTEE HAS MADE OR CAUSED TO BE MADE SUCH INSPECTIONS AS GRANTEE DEEMS APPROPRIATE. THE PARTIES AGREE THAT, TO THE EXTENT REQUIRED BY APPLICABLE LAW TO BE EFFECTIVE, THE DISCLAIMERS OF CERTAIN REPRESENTATIONS AND WARRANTIES CONTAINED IN THIS SECTION 9 ARE "CONSPICUOUS" DISCLAIMERS FOR THE PURPOSE OF ANY APPLICABLE LAW.

10. **Remedies.** In the event either Party fails to comply with any of the terms, covenants or conditions of this Agreement, the other Party suffering such default shall be entitled to seek damages, injunctive relief and any other remedies available under Applicable Law or in equity. If it becomes necessary for Grantor or Grantee to file a suit to enforce this Agreement or any provisions contained herein, the Party prevailing in such action shall be entitled to recover, in addition to all other remedies or damages, reasonable attorneys' fees and court costs incurred by such prevailing Party.

11. Release; Indemnity; Waiver of Certain Damages.

A. Grantee shall be responsible for, shall pay on a current basis, and hereby releases, defends, indemnifies and holds harmless the Grantor Parties from and against any and all liabilities, whether or not relating to third party Claims or incurred in the investigation or defense of any of the same, arising from, based upon, related to or associated with Claims for bodily

injury, illness or death arising out of or related to the Facilities or Grantee Operations, including the use of the Easement.

- B. IN NO EVENT SHALL EITHER PARTY BE LIABLE HEREUNDER FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES OR LOSS OF PROFITS OR DAMAGES FOR BUSINESS INTERRUPTION ARISING FROM OR CAUSED BY THE ACTION OR INACTION OR COMPARATIVE OR SOLE NEGLIGENCE OF SUCH PARTY UNDER THIS AGREEMENT. EACH PARTY RELEASES THE OTHER PARTY AND SUCH PARTY'S OFFICERS, DIRECTORS, EMPLOYEES, AGENTS AND AFFILIATES FROM, AND COVENANTS NOT TO SUE ANY OF THEM FOR, ANY SUCH SPECIAL INDIRECT OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR BUSINESS INTERRUPTION.
- C. The provisions of this Section 11 shall not restrict any Party's right to seek injunctive relief or specific performance. Each Party shall be entitled to enforce specifically the terms and provisions of this Agreement in addition to any other remedy to which such holder may be entitled at Applicable Law, in equity or otherwise.
12. **PRIOR ENCUMBRANCES.** This Agreement shall be subject and subordinate to any and all encumbrances, easements, licenses, rights-of-way, servitudes, permits, encroachments, gores, strips, roadways, estates, covenants, conditions, exceptions, reservations, restrictions, disputes, closure errors, prior grants, including, without limitation, grants or reservations of coal, oil, gas or other minerals and mining rights and restrictions, now or hereafter granted or reserved by Grantor or any predecessor in title, apparent with a physical inspection of the Premises, implied by law or shown, or referred to, by grants or instruments, unrecorded or of record. Grantor shall be under no obligation hereunder to preserve the Premises or its rights thereto by payment of fee or other obligation to incur costs or expenses.
13. **SURRENDER.** Upon the expiration or termination of this Agreement, the Facilities or any portion thereof shall either (a) be removed by Grantee, at Grantee's sole cost and expense, or (b) if acceptable to Grantor, be surrendered and remain in place on the Premises and become the property of Grantor, at no cost to Grantor or any payment to Grantee. Grantee shall, at its sole cost and expense, restore the Premises to substantially the same condition as existed prior to the installation of the Facilities, except as Grantor may otherwise agree. In the event that the Facilities or any portion thereof shall be surrendered and remain in place on the Premises and become the property of Grantor, then upon request of Grantor, Grantee shall execute a Bill of Sale or other transfer documents transferring the Facilities to Grantor, or its designee, consistent with the foregoing. All obligations of Grantee in this Section 13 shall survive the expiration or termination of this Agreement.
14. **RECLAMATION.** Grantee shall promptly commence and diligently pursue reclamation of all disturbed areas of the Premises related to the Facilities or to Grantee Operations in accordance with Applicable Laws. Upon completion of reclamation, Grantee Parties shall remove all equipment and personal property placed upon the Premises. The obligations of Grantee in this Section 14 shall survive the expiration or termination of this Agreement.

15. **ASSUMPTION OF RISK.** Grantee knowingly and voluntarily accepts and assumes all risks and hazards associated with the Premises and Grantee Operations, including, but not limited to, possible injury, damage or loss of life and any resulting Claims. Grantee accepts all risk of damage from the condition of the Premises or any past, present or future subsidence of the surface thereof, and Grantee hereby accepts all risk of damage to the Facilities, the Easement Area, Grantee Parties or any property of Grantee from the condition of the Premises or such subsidence in, on or under the Premises.
16. **ASSIGNMENT.** Grantee agrees not to transfer, assign, sublet, pledge or encumber, in whole or in part, this Agreement, the Easement, the Facilities or the rights granted herein without Grantor's prior written consent which consent shall not be unreasonably withheld, conditioned or delayed. Any attempted transfer in violation of the provisions above shall be void and of no force or effect.
17. **BINDING EFFECT.** This Agreement shall be binding upon and inure to the benefit of the Parties and their respective permitted transferees, successors and assigns and is for their sole benefit.
18. **THIRD PARTY BENEFICIARIES.** Nothing herein, express or implied, is intended to or shall confer upon any other person or entity any legal or equitable right, benefit, or remedy of any nature whatsoever under or by reason of this Agreement.
19. **ENTIRE AGREEMENT.** This Agreement includes all the agreements and stipulations between the Parties pertaining to the subject matter hereof, and no representations, oral or written, have been made, modifying, adding to, or changing the terms hereof.
20. **COMPLIANCE WITH LAWS.** Grantee shall comply in all material respects with all Applicable Laws which at any time now or in the future may apply to the Facilities, the Easement Area, the Premises or the Grantee Operations.
21. **GOVERNING LAW.** This Agreement shall be governed by the law of the state in which the Premises is situated, without regard to such state's conflicts of law provisions; provided, however, that if the Premises straddles multiple states, the applicable law shall be that in which the largest portion of the Premises is situated.
22. **DEFAULT.** Grantee agrees to materially abide by and perform all terms, covenants and conditions of this Agreement, and if any default thereof exists, and Grantee fails to correct said default within fifteen (15) days after written notification of such default, then Grantor shall have the option to either (a) terminate this Agreement, and all rights and privileges hereunder shall absolutely terminate except those provisions that expressly survive expiration or termination hereof, or (b) cure any such default, and Grantee shall promptly pay to Grantor all amounts expended, or advanced by Grantor in connection with such curative measures.
23. **RESERVATIONS.** Grantor excepts from the Easement, and reserves unto Grantor and Grantor's successors and assigns, any rights not expressly granted to Grantee under this Agreement. Grantor shall have the right to enter upon the surface of the Premises to make all surveys necessary to Grantor Operations as well as its operations in neighboring, coterminous or adjacent lands. The rights herein reserved are in addition to those which are inherent with the ownership of coal, oil, gas and other minerals.

24. **INSURANCE REQUIREMENTS.** Grantee agrees to keep and maintain at all times during the term of this Agreement, and to cause its Grantee Parties who enter the Premises to keep and maintain, insurance coverages and amounts reasonably acceptable to Grantor, including without limitation, the insurance requirements set forth on Exhibit "B".
25. **AMENDMENTS.** No modification, amendment, or change of this Agreement shall be valid or binding unless the same is in writing and signed by both Parties.
26. **DEFINITIONS.** Capitalized terms used herein, and not otherwise defined, shall have the following meanings:
- A. **"Affiliates"** shall mean any individual, corporation, partnership, limited liability company or other entity that, now or in the future, directly or indirectly through one or more intermediaries, controls, is controlled by, or is under common control with the given entity. For this purpose, **"control"** means possession, directly or indirectly, of power to direct or cause the direction of management or policies (whether through ownership of securities or other ownership interest, by contract, or otherwise).
- B. **"Applicable Laws"** shall mean all federal, state, local, municipal, laws, statutes, codes, acts, constitutions, ordinances, judgments, decrees, injunctions, advisories, circulars, orders, resolutions, rules, regulations, permits, licenses, authorizations, administrative orders, standards, directives, and other requirements of any governmental entity, whether now or hereafter enacted, created or promulgated, of any kind or nature, including, without limitation, all zoning, land use, building, health, security and environmental laws.
- C. **"Claims"** shall mean any and all losses, suits, proceedings, actions, or causes of action, in law or at equity, demands, penalties, fees, charges, assessments, liabilities (including, without limitation, environmental or natural resources liability or damages), damages, claims, judgments, and executions, costs and expenses of any kind, fines taxes, interest, including, without limitation, attorney's fees, expert's fees, court costs and other out-of-pocket fees) and disbursements, whether existing or incurred or asserted in the future, in connection with: (i) any such claim or the defense thereof, (ii) amounts paid in settlement, orders, liens, or decrees, or (iii) any injury of any kind and nature to persons (including sickness, illness and death), mines, wells, or property claims or to the Premises, natural resources, and (iv) consequential, punitive damages, contribution or indemnity, and with respect to any of the foregoing, whether known or unknown, foreseen or unforeseen, contingent or otherwise, whether threatened or actual, direct or indirect, and whether sustained or brought by or against any Grantee Parties, any Grantor Parties or any other persons or entities.
- D. **"Coal Area"** means, at any time, that portion of the Premises (i) where mining operations are being conducted by Grantor at such time or (b) which is included in Grantor's ten year mining plan as of such time.
- E. **"Grantor Operations"** shall mean Grantor Parties' use and occupancy of the Premises and all activities and operations of any Grantor Parties conducted on, from or underlying the Premises.

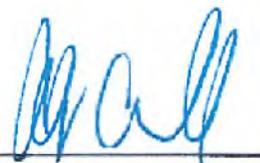
- F. **“Grantee Operations”** shall mean any Grantee Parties’ use and occupancy of the Premises and all activities and operations of any Grantee Parties conducted on, from or underlying the Premises, including all activities in connection with the Easement and the rights granted herein.
 - G. **“Grantee Parties”** shall mean Grantee and its Affiliates and each of their respective shareholders, partners, directors, officers, members, employees, consultants, contractors, subcontractors, agents, visitors, licensees, invitees, successors and assigns.
 - H. **“Grantor Parties”** shall mean Grantor and its Affiliates and each of their respective shareholders, partners, directors, officers, members, employees, consultants, contractors, subcontractors, agents, visitors, licensees, invitees, successors and assigns.
 - I. **“Non-Coal Area”** means, at any time, that portion of the Premises that is not a Coal Area at such time.
 - J. **“Oil and Gas Rights”** shall have the meaning ascribed thereto in the SUA.
 - K. **“Section”** shall mean a Section of this Agreement, and **“Exhibit”** shall mean an Exhibit to this Agreement, except as otherwise expressly indicated.
27. **CONFLICT.** Grantor and Grantee acknowledge and agree that this Agreement is subject to the terms and conditions set forth in the SUA as each of their respective interests appear of record with respect to the subject matter hereof and thereof. In the event of a conflict between the terms and provisions of this Agreement and any Exhibit hereto and the terms and provisions of the SUA, the terms and provisions of the SUA shall govern and control; *provided, however,* that the inclusion of any term or provision in this Agreement or the Exhibits hereto not addressed in the SUA shall not be deemed a conflict, and all such additional terms and provisions shall be given full force and effect, subject to this Section 27.

[SIGNATURES ON FOLLOWING PAGE]

WITNESS the due execution, Grantor and Grantee execute this Agreement as of the Effective Date.

WITNESS/ATTEST:





WITNESS/ATTEST:



GRANTOR:

McElroy Coal Company


By: JASON D. WITT
SECRETARY

The Marshall County Coal Company


By: JASON D. WITT
SECRETARY

GRANTEE:

HG ENERGY II APPALACHIA, LLC.


By: JARED HALL
PRESIDENT

Exhibits:

- Exhibit A: Premises and Easement Description/Map
- Exhibit B: Insurance

PREPARED BY/RETURN TO:
HG Energy II Appalachia, LLC
Attention: Land Department
5260 Dupont Road
Parkersburg, WV 26101

ACKNOWLEDGEMENTS

STATE OHIO :
: ss.
COUNTY OF BELMONT :

On this, the 1st day of December, 2017 before me the undersigned officer, personally appeared Jason D Witt, who acknowledged himself/herself to be the Secretary of McElroy Coal Company, a Delaware corporation, and that he/she as such officer, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of the Secretary by himself/herself as such officer.



In witness whereof, I hereunto set my hand and official seal.
JUSTIN R. SMITH
NOTARY PUBLIC
FOR THE
STATE OF OHIO
My Commission Expires
October 24, 2022

Justin R. Smith
Notary Public

STATE OHIO :
: ss.
COUNTY OF BELMONT :

On this, the 1st day of December, 2017 before me the undersigned officer, personally appeared Jason D Witt, who acknowledged himself/herself to be the Secretary of The Marshall County Coal Company, a Delaware corporation, and that he/she as such officer, being authorized to do so, executed the foregoing instrument for the purposes therein contained by signing the name of the Secretary by himself/herself as such officer.



In witness whereof, I hereunto set my hand and official seal.
JUSTIN R. SMITH
NOTARY PUBLIC
FOR THE
STATE OF OHIO
My Commission Expires
October 24, 2022

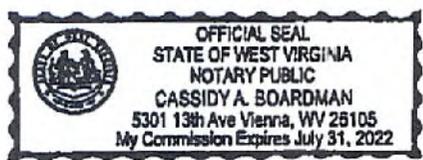
Justin R. Smith
Notary Public

STATE OF WEST VIRGINIA

:
:
:

ss.

COUNTY OF WOOD



On this 1ST day of DECEMBER, 2017, before me, the undersigned officer, personally appeared JARED HALL, as PRESIDENT of HG Energy II Appalachia, LLC, a Delaware limited liability company, and acknowledges that, being authorized to do so, the above-referenced individual and officer of said entity executed the foregoing instrument for the purposes and consideration therein contained.

In witness whereof, I hereunto set my hand and official seal.

Cassidy A. Boardman
Notary Public

Exhibit A

PREMISES AND EASEMENT DESCRIPTION/MAP

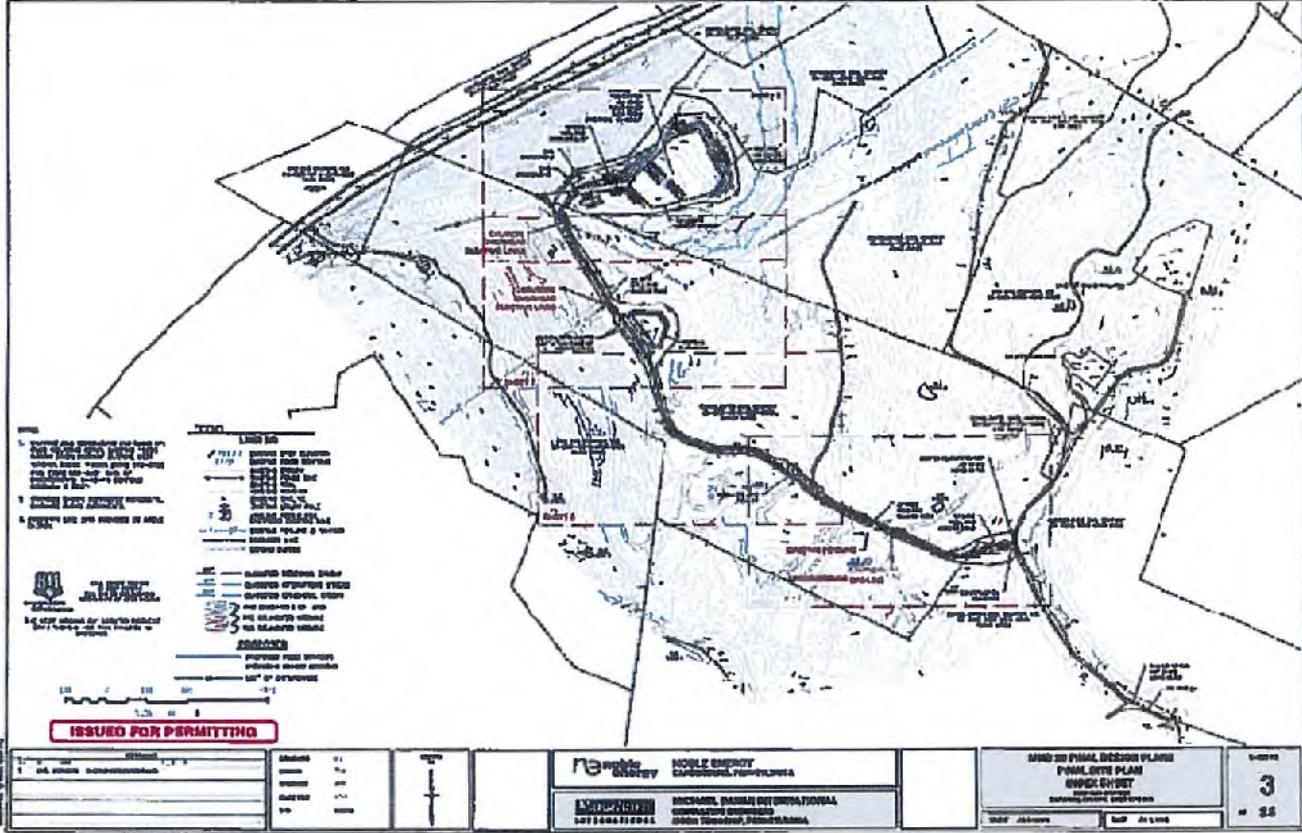


Exhibit B

INSURANCE REQUIREMENTS

<u>GENERAL LIABILITY</u> (Comprehensive or Commercial Insurance)	For bodily injury and property damage, including, without limitation, Products/Completed Operations, Independent Contractors, Contractual Liability, and Premises Operations, \$1,000,000 combined single limit per occurrence With a deductible acceptable to Grantor
<u>CONSTRUCTION</u>	During any construction on the Premises, Products/Completed Operations coverage for two (2) years following the final payment to any contractor or subcontractor performing the construction work and if any demolition work is to be performed, general liability coverage must be increased to \$5,000,000 combined single limit per occurrence
<u>WORKERS' COMPENSATION</u>	Statutory Limits, or Evidence that Grantee is a "Qualified Self Insurer"
<u>EMPLOYER'S LIABILITY</u>	\$1,000,000 each bodily injury by accident \$1,000,000 policy limit for bodily injury by disease \$1,000,000 each employee bodily injury by disease
<u>COMMERCIAL AUTOMOBILE</u>	For bodily Injury and property damage covering owned, non-owned and hired automobiles with at least \$1,000,000 combined single limit per occurrence
<u>UMBRELLA/EXCESS LIABILITY</u>	For (bodily injury and property damage) with contractual liability insurance to cover liability assumed under this Agreement, with at least \$9,000,000 combined single limit per occurrence Which must extend over and above the required Comprehensive or Commercial General Liability, Employer's Liability, and Automobile Bodily Injury and Property Damage Liability limits

ADDITIONAL INSURED(S)

Grantor and any Grantor Parties specified by Grantor must be named as additional insureds on all Liability Insurance specified above.

POLICY REQUIREMENTS

All insurance policies shall be: (i) primary, and non-contributory; (ii) written on an occurrence basis, except as permitted below; (iii) include a waiver of subrogation against Grantor and Grantor Parties, where permitted by law; (iv) maintained without interruption from the date of commencement of any Grantee Operations until Grantee and all equipment, machinery, materials and other property of Grantee have been removed from the Premises; and (v) issued by insurance companies having an A.M. Best rating of at least A-VII or better and authorized to do business in the state where the Premises is located. All policies of insurance shall include a written undertaking from the insurer to notify all insureds and additional insureds at least ten (10) days' prior to cancellation for nonpayment of premiums, and at least thirty (30) days' prior to cancellation, expiration or modification of coverage for any other reason. Grantee does not have the right to self-insure any and all coverages required above other than Worker's Compensation Insurance. Insurance may be written on a claims made basis by Grantee (but not by any of its contractors, sub-contractors or agents), if and only if any and all claims made policies expressly include a retroactive coverage date that is on or before the Effective Date, and that any replacement policies issued during any time that this Agreement is effective also include a retroactive coverage date that is on or before the Effective Date. With respect to any and all Claims against Grantor or any Grantor Parties by any employee of Grantee or Grantee Parties, the indemnification obligations under this Agreement shall not be reduced in any way by any limitation on the amount or type of damages, compensation or benefits payable by or for Grantee or any Grantee Party under workers' or workmen's compensation acts, disability acts or other employee benefit acts.

CERTIFICATE OF INSURANCE

Prior to the commencement of any Grantee Operations on the Premises, Grantee will issue certificates of insurance or evidence of self-insurance satisfying the foregoing insurance requirements, disclosing deductibles and any self-insurance. The certificates of insurance, both current and renewals, will be provided to Grantor prior to Grantee performing any Grantee Operations and from time to time upon request of Grantor, addressed as follows:

[MURRAY ENTITY]
Attn: _____

CONTRACTORS, SUBCONTRACTORS AND AGENTS

Grantee shall require each of its contractors, subcontractors and agents who enter the Premises to obtain and maintain all of the foregoing coverages under the terms and conditions set forth above, and Grantor and Grantor Parties specified by Grantor shall be named as additional insureds thereon.



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

4705102014

January 23, 2018

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

RE: Drilling Under Roads – MND20 DU
Franklin 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@hgenergyllc.com or 304-420-1119.

Very truly yours,

Diane White

Diane C. White

Enclosures

CC: Jim Nicholson - Inspector

RECEIVED
Office of Oil and Gas
FEB 16 2018
WV Department of
Environmental Protection

06/29/2018

Legal Advertisement for the
Intelligencer Newspaper

PUBLIC NOTICE OF APPLICATION FOR NATURAL
GAS HORIZONTAL WELL DRILLING PERMIT,
pursuant to West Virginia Code Section 22-6A-10(e).

HG Energy II Appalachia, LLC, 5260 Dupont Road, Parkersburg, WV 26101, is applying for a permit for a natural gas horizontal well, MND20 DU, located at approximately UTM NAD 83 Easting 516852.6, UTM NAD 83 Northing 4411319.6 in Short Creek Watershed, Powhatan Point Quadrangle, Clay District, Marshall County, WV which disturbs three acres or more of surface excluding pipelines, gathering lines and roads or utilities and uses more than two hundred ten thousand gallons of water in any thirty day period.

Any interested person may submit written comments or request a copy of the proposed permit application by emailing dep.oogcomments@wv.gov, sending a letter to Permit Review, Office of Oil and Gas, 601 57th Street, SE, Charleston, WV 25304, or calling 304-926-0450. Emailed or written comments must reference the county, well number and operator and must be received within 30 days of the date of the last publication (expected to be January 22, 2018). Copies of the proposed permit application may be reviewed at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304, (304-926-0450). Full copies or scans of the proposed permit application will cost \$15.00, whether mailed or obtained at DEP headquarters.

For information relating to horizontal drilling, and all horizontal well applications filed in this state, visit: www.dep.wv.gov/oil-and-gas-/Horizontal-Permits/Pages/default.aspx

HG Energy II Appalachia, LLC 01/08/18

RECEIVED
Office of Oil and Gas

FEB 16 2018

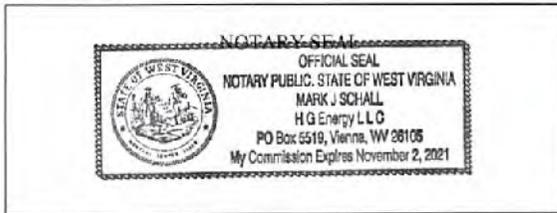
WV Department of
Environmental Protection

06/29/2018

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 23rd day of January,
Mark J. Schall Notary Public
 My Commission Expires 11/2/2021

Oil and Gas Privacy Notice:

The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory requirements, including Freedom of Information Act requests. Our office will appropriately secure your personal information. If you have any questions about our use or your personal information, please contact DEP's Chief Privacy Officer at depprivacyofficer@wv.gov.

RECEIVED
 Office of Oil and Gas
 FEB 16 2018
 WV Department of
 Environmental Protection
 06/29/2018

**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: 1/29/2018 **Date Permit Application Filed:** 2/06/2018

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: Murray Energy Corporation - Alex O'Neill

Address: 48226 National Road
Saint Clairsville, OH 43950

Name: _____

Address: _____

SURFACE OWNER(s) (Road and/or Other Disturbance)

Name: _____

Address: _____

Name: _____

Address: _____

SURFACE OWNER(s) (Impoundments or Pits)

Name: _____

Address: _____

COAL OWNER OR LESSEE

Name: Same as Surface Owner

Address: _____

COAL OPERATOR

Name: _____

Address: _____

SURFACE OWNER OF WATER WELL AND/OR WATER PURVEYOR(s)

Name: _____

Address: _____

OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: _____

Address: _____

*Please attach additional forms if necessary

RECEIVED
Office of Oil and Gas

FEB 16 2018

WV Department of
Environmental Protection
06/29/2018

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 an impoundment or pit.

This Notice Shall Include:

Pursuant to W. Va. Code § 22-6A-10(b), this notice shall include: (1) copies of the application; (2) the 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 noise

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

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.**

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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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West Virginia Department of
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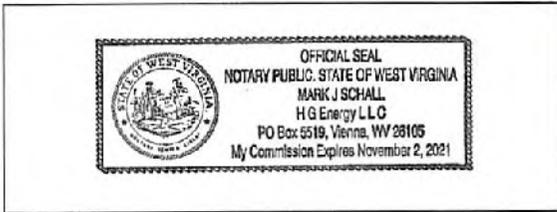
Notice is hereby given by:

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

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

Oil and Gas Privacy Notice:

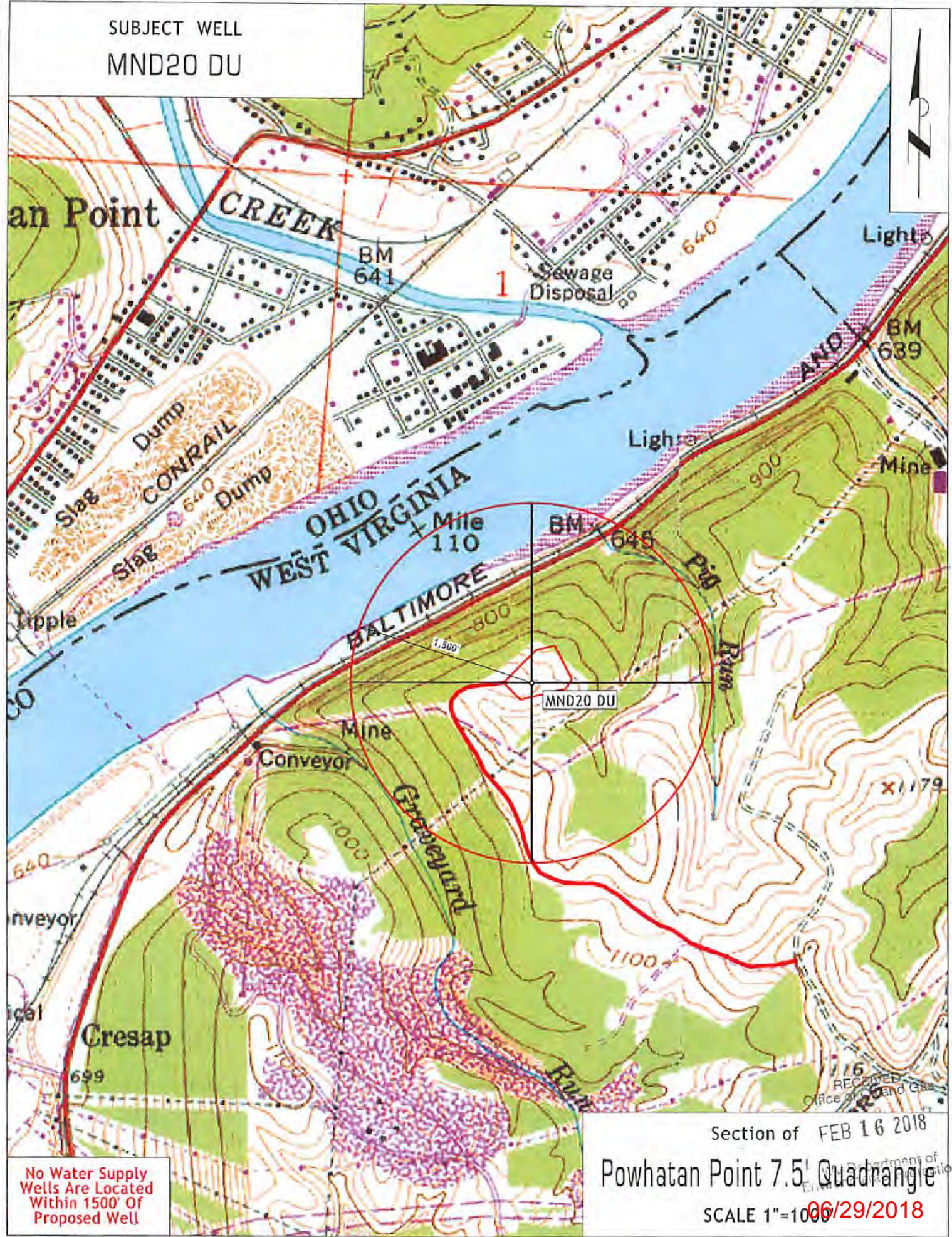
The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory 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.



Subscribed and sworn before me this 29th day of January, 2018.
[Signature] Notary Public
My Commission Expires 11/2/2021

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SUBJECT WELL
MND20 DU



No Water Supply Wells Are Located Within 1500' Of Proposed Well

Section of FEB 16 2018
Powhatan Point 7.5' Quadrangle
SCALE 1"=1000'
06/29/2018

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: 01/23/2018 **Date Permit Application Filed:** 02/06/2018

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: Murray Energy Corporation - Alex O'Neill
Address: 46226 National Road
Saint Clairsville, OH 43950

Name: _____
Address: _____

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: West Virginia UTM NAD 83 Easting: 516852.6
County: Marshall Northing: 4411319.6
District: Franklin Public Road Access: SLS 2/1
Quadrangle: Powhatan Point Generally used farm name: Consol
Watershed: Short Creek - Ohio River (HUC 10)

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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06/29/2018



WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

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

Jim Justice
Governor

Thomas J. Smith, P. E.
Secretary of Transportation/
Commissioner of Highways

July 28, 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 MND-20 Well Pad, Marshall County

Dear Mr. Martin,

The West Virginia Division of Highways has transferred Permit #06-2012-0609 for the subject site to HG Energy, LLC. for access to the State Road for the well sites located off of Marshall County Route 2/1 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

Cc: Diane White
H G Energy, LLC
CH, OM, D-6
File

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HG Energy II Appalachia, LLC
List of Frac Additives by Chemical Name and CAS #
MND20 Well Pad (AU,BU,CU,DU,EU)

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
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

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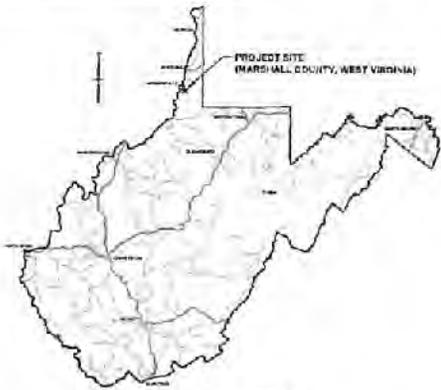
11020-15

APPROVED
WVDEP OOG
3/13/2018

MND 20 WELL PAD ISSUED FOR CONSTRUCTION

FRANKLIN DISTRICT, MARSHALL COUNTY WEST VIRGINIA FOR

HG ENERGY II, APPALACHIA LLC
5260 DUPONT ROAD
PARKERSBURG, WEST VIRGINIA
(304) 420-1100



VICINITY MAP
A.T.S.

NAME	PROPERTY OWNERS / LAND DISTANCE TABLE				
	DEED ADDRESS	LIST OF SUBDIVISIONS	OWNER'S GRID ENGINEERING	CLEARANCE BY DATE	TOTAL CLEAR & WIDE
MARSHAL COUNTY (COUNTY)	73.50	8.88	12.14	0.00	94.52
00-001-001-000-000	120.00	0.00	2.00	0.00	122.00
00-002-002-000-000	43.00	0.00	0.00	0.00	43.00
00-003-003-000-000	183.50	1.88	9.44	0.00	194.82
TOTAL	360.00	10.76	23.58	0.00	394.34

EARTHWORK SUMMARY			
	CUT	FILL	NET
WELL PAD ACCESS ROAD	11.50	0.00	11.50
WELL PAD	0.00	0.00	0.00
TOTAL TOPPOGRAPHY	11.50	0.00	11.50
TOTAL FINISHED EARTHWORK	11.50	0.00	11.50

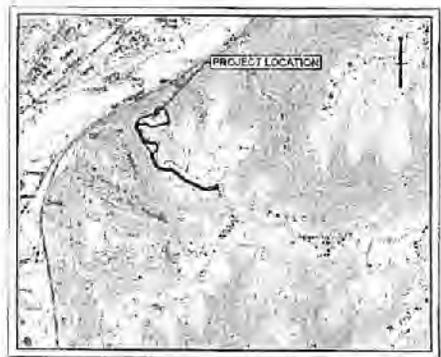
ORIGINAL OR RECONSTRUCTED	THICKNESS	AREA
ORIGINAL OR RECONSTRUCTED	12"	1.40
ORIGINAL OR RECONSTRUCTED	18"	2.16
TOTAL	30"	3.56



THE WEST VIRGINIA 811 SERIAL NUMBER FOR THIS PROJECT IS: 151022008

ISSUED FOR CONSTRUCTION

SHEET	DATE	TITLE
1	FEBRUARY 2016	COVER SHEET
2	FEBRUARY 2016	EXISTING CONDITIONS PLAN (WITH ORTHO PHOTOGRAPHY)
3	FEBRUARY 2016	INDEX SHEET
4	FEBRUARY 2016	DRAINAGE AREAS AND SOILS MAP
5	FEBRUARY 2016	EROSION AND SEDIMENTATION CONTROL PLAN
6	FEBRUARY 2016	EROSION AND SEDIMENTATION CONTROL PLAN
7	FEBRUARY 2016	EROSION AND SEDIMENTATION CONTROL PLAN
8	FEBRUARY 2016	EROSION AND SEDIMENTATION CONTROL PLAN
9	FEBRUARY 2016	COORDINATE GEOMETRY PLAN
10	FEBRUARY 2016	COORDINATE GEOMETRY PLAN
11	FEBRUARY 2016	COORDINATE GEOMETRY PLAN
12	FEBRUARY 2016	COORDINATE GEOMETRY PLAN
13	FEBRUARY 2016	ACCESS ROAD SITE PLAN AND PROFILE
14	FEBRUARY 2016	ACCESS ROAD SITE PLAN AND PROFILE
15	FEBRUARY 2016	ACCESS ROAD SITE PLAN AND PROFILE
16	FEBRUARY 2016	ACCESS ROAD CENTERLINE HORIZONTAL GEOMETRY
17	FEBRUARY 2016	ACCESS ROAD CROSS SECTIONS
18	FEBRUARY 2016	ACCESS ROAD CROSS SECTIONS
19	FEBRUARY 2016	ACCESS ROAD CROSS SECTIONS
20	FEBRUARY 2016	ACCESS ROAD CROSS SECTIONS
21	FEBRUARY 2016	WELL PAD AND ROADWAY CROSS SECTIONS
22	FEBRUARY 2016	SEEDING AND LINING PLAN
23	FEBRUARY 2016	SEEDING AND LINING PLAN
24	FEBRUARY 2016	WELL PAD RECLAMATION PLAN
25	FEBRUARY 2016	SITE CONSTRUCTION DETAILS
26	FEBRUARY 2016	SITE CONSTRUCTION DETAILS
27	FEBRUARY 2016	EROSION AND SEDIMENTATION CONTROL NOTES
28	FEBRUARY 2016	EROSION AND SEDIMENTATION CONTROL NOTES
29	FEBRUARY 2016	EROSION AND SEDIMENTATION CONTROL DETAILS
30	FEBRUARY 2016	EROSION AND SEDIMENTATION CONTROL DETAILS



LOCATION MAP

DIRECTIONS TO MND 20 WELL PAD:
FROM MOUNDSVILLE, WV ROAD WEST ONTO WV-2 S (1 MI). TURN LEFT ONTO STATE ROUTE 2 ALTY. TURN LEFT IMMEDIATELY ONTO ROBERTS RIDGE ROAD (2.8 MI). CONTINUE ONTO ROBERTS RIDGE ST JOSEPH ROAD (1.9 MI) SLIGHT RIGHT ON TAYLORS RIDGE ROAD (1.2 MI). TURN RIGHT ONTO THE MND 03 ACCESS ROAD (0.25 MI). TURN LEFT ONTO THE MND 20 ACCESS ROAD. THE WELL PAD WILL BE LOCATED APPROXIMATELY 0.70 MI FROM THIS INTERSECTION.

DIRECTIONS TO MND 20 WELL PAD FOR HEAVY EQUIPMENT:
FROM WV ROUTE 2 SOUTH AT TRAFFIC SIGNAL, MAKE A LEFT TURN ONTO WV ALTERNATE 2 (ROUND BOTTOM HILL ROAD) AND TRAVEL 1.54 MILES TO CR 89/S (LINDSAY LANE). MAKE A RIGHT ONTO LINDSAY LANE AND TRAVEL 1.77 MILES TO CR 21 (ROBERTS RIDGE ROAD). MAKE A RIGHT ONTO ROBERTS RIDGE ROAD AND TRAVEL 3.38 MILES TO CR 2/1 (TAYLORS RIDGE/MCFARLAND RUN). MAKE A RIGHT ONTO TAYLORS RIDGE/MCFARLAND RUN ROAD AND TRAVEL 1.28 MILES TO INTERSECTION, MAKE A RIGHT AND FOLLOW ROAD UNTIL YOU REACH A GATE. TRAVEL THROUGH THE GATE TO INTERSECTION, MAKE A RIGHT AND TRAVEL FOR 800 FEET TO THE LEASE ROAD ON THE RIGHT.

RECEIVING WATERWAYS:

PIG RUN
CLASS 91 - WARM WATER (AQUATIC)
RESIDING IN UPPER OHIO SOUTH WATERSHED

MND 20 WELL PAD TOPHOLE COORDINATES

WELL NUMBER	WV27-N LATITUDE	WV27-E LONGITUDE	WV27-N NORTHING	WV27-E EASTING	WV27-N LATITUDE	WV27-E LONGITUDE	WV27-N NORTHING	WV27-E EASTING	UTM 18Q-17 NORTHING (M)	UTM 18Q-17 EASTING (M)	UTM 18Q-17 NORTHING (M)	UTM 18Q-17 EASTING (M)
MND20-1	39 451.79481	81 800564718	40994.690	102070.285	39 451.79523	81 800564944	40994.690	102070.285	44183.540	51052.433	44183.540	51052.433
MND20-2	39 451.79481	81 800564718	40994.690	102070.285	39 451.79523	81 800564944	40994.690	102070.285	44183.540	51052.433	44183.540	51052.433
MND20-3	39 451.79444	81 800564718	40994.690	102070.285	39 451.79523	81 800564944	40994.690	102070.285	44183.540	51052.433	44183.540	51052.433
MND20-4	39 451.77000	81 800564718	40994.690	102070.285	39 451.79523	81 800564944	40994.690	102070.285	44183.540	51052.433	44183.540	51052.433
MND20-5	39 451.79481	81 800564718	40994.690	102070.285	39 451.79523	81 800564944	40994.690	102070.285	44183.540	51052.433	44183.540	51052.433
ROAD ENTRANCE	39 451.79481	81 800564718	40994.690	102070.285	39 451.79523	81 800564944	40994.690	102070.285	44183.540	51052.433	44183.540	51052.433
WELL PAD CENTER	39 451.79481	81 800564718	40994.690	102070.285	39 451.79523	81 800564944	40994.690	102070.285	44183.540	51052.433	44183.540	51052.433

NO.	DATE	REVISION	DESCRIPTION

DESIGNED	JLH
DRAWN	MLB
CHECKED	SAT
REVIEWED	CAF
NO.	DATE

HG ENERGY II, APPALACHIA LLC
PARKERSBURG, WEST VIRGINIA

Michael Baker International
MICHAEL BAKER INTERNATIONAL
CONSULTING ENGINEERS
MOON TOWNSHIP, PENNSYLVANIA



MND 20 CONSTRUCTION PLANS

COVER SHEET

FRANKLIN DISTRICT
MARSHALL COUNTY, WEST VIRGINIA

SCALE: AS SHOWN DATE: FEBRUARY, 2016

SHEET NO.

1

OF 30

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Office of Oil and Gas

MAR 8 2018

SI-02014

- NOTES**
1. MAPPING AND TOPOGRAPHY PROVIDED BY BLUE MOUNTAIN AERIAL MAPPING 81033 WASH. STATE HIGHWAY BUNION, WEST VIRGINIA 26042. DATUM: (DA) 487-2628 FAX: (254) 882-8801 DATE OF PHOTOGRAPHY: 4-18-14 CONTROL INTERVAL: 2 FEET
 2. SPOT ELEVATIONS REPRESENT EMBODIMENT DISTANCE ALONG ALIQUANTS.
 3. WELL PAD AREA = 194,815 S.F.
 4. LIMIT OF DISTURBANCE = 1720 ACRES
 5. PROPERTY LINE DATA PROVIDED BY TABLE 1 (SEE)
 6. ALL FILL COMPACTED TO 95% OF STANDARD PROCTOR DENSITY (ASTM D-1557). FILL WILL BE FREE OF OBSTACULAR MATERIAL WITHIN LARGER THAN 6" ROCK LIFT WILL BE NO GREATER THAN 3".

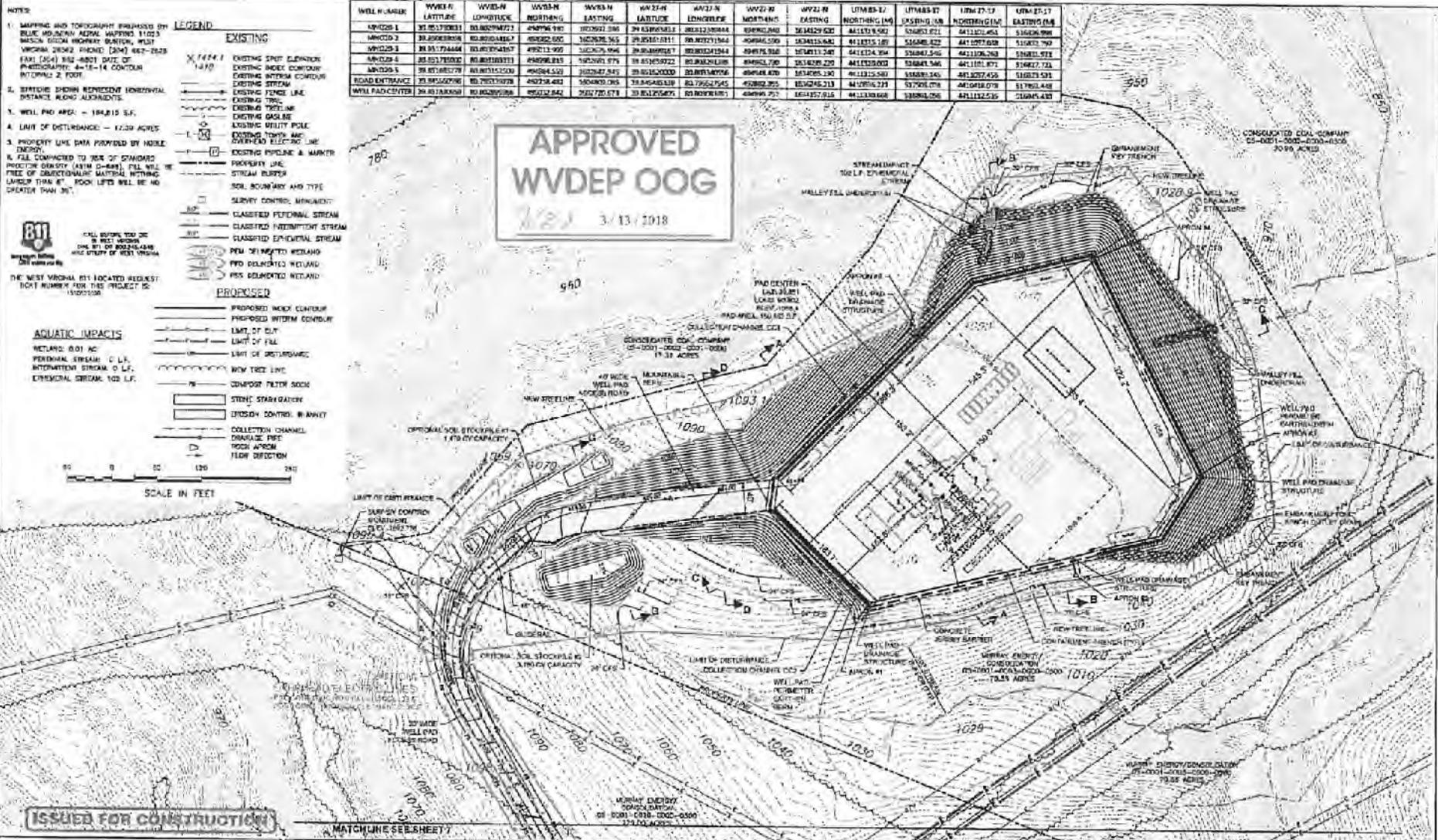


- AQUATIC IMPACTS**
- WELAND: 801 AC
 - PERMANENT STREAM: 0 L.F.
 - INTERMITTENT STREAM: 0 L.F.
 - EXTRINSIC STREAM: 102 L.F.

- LEGEND**
- EXISTING**
- EXISTING SPOT ELEVATION
 - EXISTING INDEX CONTOUR
 - EXISTING INTERIM CONTOUR
 - EXISTING STREAM
 - EXISTING FENCE LINE
 - EXISTING TIE LINE
 - EXISTING TRAIL
 - EXISTING GAS LINE
 - EXISTING UTILITY POLE
 - EXISTING TOWNSHIP AND COUNTY-LEVEL ELECTRIC LINE
 - EXISTING PIPELINE & MARKER
 - PROPERTY LINE
 - STREAM BUFFER
 - SOIL BOUNDARY AND TYPE
 - SURVEY CONTROL MONUMENT
 - CLASSIFIED PERMANENT STREAM
 - CLASSIFIED INTERMITTENT STREAM
 - CLASSIFIED EXTRINSIC STREAM
 - PERM DELIMITED WELAND
 - PERM DELIMITED WELAND
 - PERM DELIMITED WELAND
- PROPOSED**
- PROPOSED INDEX CONTOUR
 - PROPOSED INTERIM CONTOUR
 - LIMIT OF CUT
 - LIMIT OF FILL
 - LIMIT OF DISTURBANCE
 - NEW TREE LINE
 - COMPOST FILTER SOCK
 - STONE STRAIN GARDEN
 - EROSION CONTROL IN BANK
 - COLLECTION CHANNEL
 - DRAINAGE PIPE
 - TRUCK APPROX
 - FLOW DIRECTION

WELL NUMBER	WVDEP LATITUDE	WVDEP LONGITUDE	WVDEP NORTHING	WVDEP EASTING	WVDEP LATITUDE	WVDEP LONGITUDE	WVDEP NORTHING	WVDEP EASTING	UTM83E UTM EASTING	UTM83E UTM NORTHING	UTM83E UTM EASTING	UTM83E UTM NORTHING
WVDEP 1	39 52 17.0000	80 48 27.0000	49496.910	50290.390	39 52 17.0000	80 48 27.0000	49496.910	50290.390	18UJG 18T 804827000	49496910	50290390	441132150
WVDEP 2	39 52 08.0000	80 48 24.0000	49502.000	50290.390	39 52 08.0000	80 48 24.0000	49502.000	50290.390	18UJG 18T 804824000	49502000	50290390	441132150
WVDEP 3	39 52 17.0000	80 48 27.0000	49496.910	50290.390	39 52 17.0000	80 48 27.0000	49496.910	50290.390	18UJG 18T 804827000	49496910	50290390	441132150
WVDEP 4	39 52 17.0000	80 48 27.0000	49496.910	50290.390	39 52 17.0000	80 48 27.0000	49496.910	50290.390	18UJG 18T 804827000	49496910	50290390	441132150
WVDEP 5	39 52 17.0000	80 48 27.0000	49496.910	50290.390	39 52 17.0000	80 48 27.0000	49496.910	50290.390	18UJG 18T 804827000	49496910	50290390	441132150
WVDEP 6	39 52 17.0000	80 48 27.0000	49496.910	50290.390	39 52 17.0000	80 48 27.0000	49496.910	50290.390	18UJG 18T 804827000	49496910	50290390	441132150
WVDEP 7	39 52 17.0000	80 48 27.0000	49496.910	50290.390	39 52 17.0000	80 48 27.0000	49496.910	50290.390	18UJG 18T 804827000	49496910	50290390	441132150
WVDEP 8	39 52 17.0000	80 48 27.0000	49496.910	50290.390	39 52 17.0000	80 48 27.0000	49496.910	50290.390	18UJG 18T 804827000	49496910	50290390	441132150
WVDEP 9	39 52 17.0000	80 48 27.0000	49496.910	50290.390	39 52 17.0000	80 48 27.0000	49496.910	50290.390	18UJG 18T 804827000	49496910	50290390	441132150
WVDEP 10	39 52 17.0000	80 48 27.0000	49496.910	50290.390	39 52 17.0000	80 48 27.0000	49496.910	50290.390	18UJG 18T 804827000	49496910	50290390	441132150
WVDEP 11	39 52 17.0000	80 48 27.0000	49496.910	50290.390	39 52 17.0000	80 48 27.0000	49496.910	50290.390	18UJG 18T 804827000	49496910	50290390	441132150
WVDEP 12	39 52 17.0000	80 48 27.0000	49496.910	50290.390	39 52 17.0000	80 48 27.0000	49496.910	50290.390	18UJG 18T 804827000	49496910	50290390	441132150
WVDEP 13	39 52 17.0000	80 48 27.0000	49496.910	50290.390	39 52 17.0000	80 48 27.0000	49496.910	50290.390	18UJG 18T 804827000	49496910	50290390	441132150
WVDEP 14	39 52 17.0000	80 48 27.0000	49496.910	50290.390	39 52 17.0000	80 48 27.0000	49496.910	50290.390	18UJG 18T 804827000	49496910	50290390	441132150
WVDEP 15	39 52 17.0000	80 48 27.0000	49496.910	50290.390	39 52 17.0000	80 48 27.0000	49496.910	50290.390	18UJG 18T 804827000	49496910	50290390	441132150
WVDEP 16	39 52 17.0000	80 48 27.0000	49496.910	50290.390	39 52 17.0000	80 48 27.0000	49496.910	50290.390	18UJG 18T 804827000	49496910	50290390	441132150
WVDEP 17	39 52 17.0000	80 48 27.0000	49496.910	50290.390	39 52 17.0000	80 48 27.0000	49496.910	50290.390	18UJG 18T 804827000	49496910	50290390	441132150
WVDEP 18	39 52 17.0000	80 48 27.0000	49496.910	50290.390	39 52 17.0000	80 48 27.0000	49496.910	50290.390	18UJG 18T 804827000	49496910	50290390	441132150
WVDEP 19	39 52 17.0000	80 48 27.0000	49496.910	50290.390	39 52 17.0000	80 48 27.0000	49496.910	50290.390	18UJG 18T 804827000	49496910	50290390	441132150
WVDEP 20	39 52 17.0000	80 48 27.0000	49496.910	50290.390	39 52 17.0000	80 48 27.0000	49496.910	50290.390	18UJG 18T 804827000	49496910	50290390	441132150

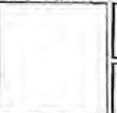
APPROVED WVDEP OOG
3/13/2018



ISSUED FOR CONSTRUCTION

NO.	DATE	BY	REVISION

DESIGNED	WES
DRAWN	WES
CHECKED	WES
APPROVED	WES
S.D.	14886



HG ENERGY II, APPALACHIA LLC
PARKERSBURG, WEST VIRGINIA

Michael Baker International
MICHAEL BAKER INTERNATIONAL
CONSULTING ENGINEERS
MOON TOWNSHIP, PENNSYLVANIA



MND 20 CONSTRUCTION PLANS
EROSION AND SEDIMENTATION
CONTROL PLAN

FRANKLIN COUNTRY
MARSHALL COUNTY, WEST VIRGINIA

SCALE: AS SHOWN DATE: FEBRUARY, 2018

SHEET NO. **8**
OF 30

RECEIVED
Office of Oil and Gas

MAR 8 2018

WV Department of Environmental Protection