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west virginia department of environmental protection

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Office of Oil and Gas  
601 57<sup>th</sup> Street, S.E.  
Charleston, WV 25304  
(304) 926-0450  
fax: (304) 926-0452

Austin Caperton, Cabinet Secretary  
[www.dep.wv.gov](http://www.dep.wv.gov)

Monday, July 1, 2019  
WELL WORK PERMIT  
Horizontal 6A / New Drill

HG ENERGY II APPALACHIA, LLC  
5260 DUPONT ROAD

PARKERSBURG, WV 26101

Re: Permit approval for MND23 N-3H  
47-051-02231-00-00

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

A blue ink signature of James A. Martin, written over a white background.

Operator's Well Number: MND23 N-3H  
Farm Name: HG ENERGY II APPALACHIA  
U.S. WELL NUMBER: 47-051-02231-00-00  
Horizontal 6A New Drill  
Date Issued: 7/1/2019

Promoting a healthy environment.

# 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](mailto:DEPOOGNotify@wv.gov).

WW-6B  
(04/15)

API NO. 47-\_\_\_\_\_-\_\_\_\_\_  
OPERATOR WELL NO. MND23 N-3H  
Well Pad Name: MND23

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

1) Well Operator: HG Energy II Appalachia, LLC 494519932 Marshall Franklin Powhatan Point  
Operator ID County District Quadrangle

2) Operator's Well Number: MND23 N-3H Well Pad Name: MND23

3) Farm Name/Surface Owner: CONSOL/HG Energy II Appalachia, LLC Public Road Access: Nixon Ridge Road (SLS 21/1)

4) Elevation, current ground: 1273' Elevation, proposed post-construction: 1240'

5) Well Type (a) Gas x Oil \_\_\_\_\_ Underground Storage \_\_\_\_\_  
Other \_\_\_\_\_

(b) If Gas Shallow x Deep \_\_\_\_\_  
Horizontal \_\_\_\_\_ *JM 4/17/19*

6) Existing Pad: Yes or No No

7) Proposed Target Formation(s), Depth(s), Anticipated Thickness and Expected Pressure(s):  
Marcellus, 6474' - 6540', 66' Thick, 4204 psi

8) Proposed Total Vertical Depth: 6535'

9) Formation at Total Vertical Depth: Marcellus

10) Proposed Total Measured Depth: 15631'

11) Proposed Horizontal Leg Length: 8397'

12) Approximate Fresh Water Strata Depths: 538', 801', 898', 947'

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

14) Approximate Saltwater Depths: None

15) Approximate Coal Seam Depths: 847' - 852'

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

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: Marshall County Mine  
Depth: 890' to seam base  
Seam: Pittsburgh #8  
Owner: Murray Energy Corporation

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WW-6B  
(04/15)

API NO. 47- \_\_\_\_\_  
 OPERATOR WELL NO. MND23 N-3H  
 Well Pad Name: MND23

18)

**CASING AND TUBING PROGRAM**

| TYPE         | Size (in) | New or Used | Grade | Weight per ft. (lb/ft) | FOOTAGE: For Drilling (ft) | INTERVALS: Left in Well (ft) | CEMENT: Fill-up (Cu. Ft.)/CTS |
|--------------|-----------|-------------|-------|------------------------|----------------------------|------------------------------|-------------------------------|
| Conductor    | 20"       | New         | J-55  | 94                     | 100'                       | 100'                         | Drilled In                    |
| Fresh Water  | 13 3/8"   | New         | J-55  | 54.5                   | 1075'                      | 1075'                        | CTS                           |
| Coal         |           |             |       |                        |                            |                              |                               |
| Intermediate | 9 5/8"    | New         | J-55  | 40                     | 3150'                      | 3150'                        | CTS                           |
| Production   | 5 1/2"    | New         | P-110 | 23                     | 15631'                     | 15631'                       | CTS                           |
| Tubing       |           |             |       |                        |                            |                              |                               |
| Liners       |           |             |       |                        |                            |                              |                               |

*JM* 4/17/19

| 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    | 20"       | 20"                    | 0.438               | 2110                 |  | Type 1, Class A |                                    |
| Fresh Water  | 13 3/8"   | 17.5"                  | 0.380               | 2730                 |  | Type 1, Class A | 40% excess, yield = 1.20, CTS      |
| Coal         |           |                        |                     |                      |  |                 |                                    |
| Intermediate | 9 5/8"    | 12 1/4"                | 0.395               | 3950                 |  | Type 1, Class A | 40% excess, yield = 1.20, CTS      |
| Production   | 5 1/2"    | 8 1/2"                 | 0.415               | 14520                | 11500                                    | Type 1, Class A | 20% excess, lead yield = 1.19, CTS |
| Tubing       |           |                        |                     |                      |  |                 |                                    |
| Liners       |           |                        |                     |                      |  |                 |                                    |

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**PACKERS**

|             |  |  |  |  |
|-------------|--|--|--|--|
| Kind:       |  |  |  |  |
| Sizes:      |  |  |  |  |
| Depths Set: |  |  |  |  |

WW-6B  
(10/14)

API NO. 47- \_\_\_\_\_ - \_\_\_\_\_  
OPERATOR WELL NO. MND23 N-3H  
Well Pad Name: MND23

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

Drill the vertical depth to the Marcellus at an estimated total vertical depth of approximately 6,535 feet. Drill to estimated 15,631 TMD, stimulate and be capable of producing the Marcellus Formation. Should an unanticipated void be encountered in the coal, we will install a minimum of 20' of casing below the void but not more than 100' below the void, set a basket and grout to surface.

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

The stimulation will be multiple stages divided over the lateral length of the well. Stage spacing is dependent upon engineering design. Slickwater fracturing technique will be utilized on each stage using sand, water and chemicals. See attached list. Maximum pressure not expected to exceed 11,500 psi.

21) Total Area to be disturbed, including roads, stockpile area, pits, etc., (acres): 10.557 acres

22) Area to be disturbed for well pad only, less access road (acres): 8.498 acres

23) Describe centralizer placement for each casing string:

Conductor - N/A  
Surface Casing - Bow Springs (over collars) on first 2 joints then every third joint to 100' from surface  
Intermediate Casing - Bow Springs (over collars) on first 12 joints, then every third joint to 100' from surface  
Production Casing - Run 1 spiral centralizer every 5 joints from the top of the curve to surface. Run 1 spiral centralizer every 3 joints from the 1st 5.5' long joint to the top of the curve.

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

Conductor - Already grouted in  
Surface Casing - "15.6 ppg PNE-1 + 3% bwoc CaCl 40% Excess Yield=1.20 / CTS"  
Intermediate Casing - "Lead: 15.4 ppg PNE-1 + 2.5% bwoc CaCl 40% Excess / Tail: 15.9 ppg PNE-1 + 2.5% bwoc CaCl zero% Excess Yield=1.19 CTS"  
Production Casing - "Lead: 14.5 ppg POZ:PNE-1 + 0.3% bwoc R3 + 1% bwoc EC1 + 0.75 gal/sk FP13L + 0.3% bwoc MPA17020 ExcessLead Yield=1.19 Tail Yield=1.94 CTS"  
"14.5 ppg PNE-1 + 0.35% bwoc R3 + 0.75 gal/sk FP13L + 50% bwoc ASCA1 + 0.5% bwoc MPA17020 ExcessLead Yield=1.19 Tail Yield=1.94 CTS"

25) Proposed borehole conditioning procedures:

Conductor - Once at casing setting depth, ensure hole is clean at TD  
Surface Casing - Circulate & condition @ TD w/ Air. RIH w/ casing & fill w/ Fresh Water. Circulate a minimum of 1 hole volume, plus 30 bbls of 6% bentonite Gel/50# of poly flake, then clear casing w/ Fresh Water prior to pumping cement.  
Intermediate Casing - Circulate & condition @ TD w/ Air. RIH w/ casing & fill w/ Fresh Water. Circulate a minimum of 1 hole volume, plus 30 bbls of 6% bentonite Gel/50# of poly flake, then clear casing w/ Fresh Water prior to pumping cement.  
Production Casing - 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.

\*Note: Attach additional sheets as needed.

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OFFICE OF OIL AND GAS



RECEIVED  
MND23 N-3H

Marcellus Shale Horizontal  
Marshall County, WV

MND23 N-3H SHL

14459387.11N 1706163.27E

Ground Elevation 1240'

(RKB) 25'

MND23 N-3H LP

14458331.96N 1705051.98E

Azm

323.643°

MND23 N-3H BHL

14465094.38N 1700074.06E

| WELLBORE DIAGRAM | HOLE                        | CASING                      | GEOLOGY              | TOP                    | BASE        | MUD  | CEMENT  | CENTRALIZERS   | CONDITIONING  | COMMENTS  |   |  |
|------------------|-----------------------------|-----------------------------|----------------------|------------------------|-------------|------|---|--|---|---|---|--|
|                  | 20"                         | 20" 94# J-55                | Conductor            | 0                      | 100         | AIR  | Drilled in via Dual Rotary (no annular space)                   | N/A  | Once at casing setting depth, ensure hole is clean at TD  | Conductor casing = 0.438" wall thickness<br>Burst=2110 psi  |   |  |
|                  | 17.5"                       | 13-3/8" 54.5# J-55 BTC      | Fresh Water          | 538', 801', 898', 947' |             | AIR  | 15.6 ppg PNE-1 + 3% bwoc CaCl<br>40% Excess<br>Yield=1.20 / CTS | Bow Springs (over collars) on first 2 joints then every third joint to 100' from surface   | Circulate & condition @ TD w/ Air. R/H w/ casing & fill w/ Fresh Water. Circulate a minimum of 1 hole volume, plus 30 bbls of 8% bentonite Gel/50# of poly flake, then clear casing w/ Fresh Water prior to pumping cement. | Surface casing = 0.380" wall thickness<br>Burst=2730 psi  |   |  |
|                  |                             |                             | Surface Casing       | 0                      | 1075        |      |   |  |   |   |   |  |
|                  |                             |                             | Coal(s)              | 847' - 852'            |             |      |   |  |   |   |   |  |
|                  | 12.25"                      | 9-5/8" 40# J-55 BTC         | Big Lime / Big Injun | 2154 / 2258            | 2258 / 2300 |      | AIR   | Lead: 15.4 ppg PNE-1 + 2.5% bwoc CaCl<br>40% Excess / Tail: 15.9 ppg PNE-1 + 2.5% bwoc CaCl<br>zero% Excess.<br>CTS  | Bow Springs (over collars) on first 12 joints, then every third joint to 100' from surface  | Circulate & condition @ TD w/ Air. R/H w/ casing & fill w/ Fresh Water. Circulate a minimum of 1 hole volume, plus 30 bbls of 8% bentonite Gel/50# of poly flake, then clear casing w/ Fresh Water prior to pumping cement.     | Intermediate casing = 0.395" wall thickness<br>Burst=3650 psi   |  |
|                  |                             |                             | Pocono               | 2464                   |             |      |   |  |   |   |   |  |
|                  |                             |                             | 5th Sand             | 2624                   |             |      |   |  |   |   |   |  |
|                  |                             |                             | Gordon               | 3038                   |             |      |   |  |   |   |   |  |
|                  | 8.5" Vertical               | 5-1/2" 23# P-110 HC CDC HTQ | Intermediate Casing  | 0                      | 3150        |      | AIR and/or 9.0ppg SOBM  | Lead: 14.5 ppg POZ:PNE-1 + 0.3% bwoc R3 + 1% bwoc EC1 + 0.75 gal/sk FP13L + 0.35% bwoc R3 + 0.75 gal/sk FP13L + 50% bwoc ASCA1 + 0.5% bwoc MPA170<br>20% Excess<br>Lead Yield=1.19<br>Tail Yield=1.94<br>CTS | Run 1 spiral centralizer every 5 joints from the top of the curve to surface.   | Once on bottom/TD with casing, circulate at max allowable pump rate for at least 2x bottoms up, or until returns and pump pressures indicate the hole is clean. Circulate a minimum of one hole volume prior to pumping cement. | Production casing = 0.415" wall thickness<br>Burst=14520 psi<br>Note:Actual centralizer schedules may be changed due to hole conditions |  |
|                  |                             |                             | Rhinestreet          | 5946                   |             | 6238 |   |  |   |   |   |  |
|                  |                             |                             | Cashaqua             | 6238                   |             | 6302 |   |  |   |   |   |  |
|                  |                             |                             | Middlesex            | 6302                   |             | 6325 |   |  |   |   |   |  |
|                  |                             |                             | West River           | 6325                   |             | 6392 |   |  |   |   |   |  |
|                  |                             |                             | Burkett              | 6392                   |             | 6410 |   |  |   |   |   |  |
|                  |                             |                             | Tully                | 6410                   |             | 6439 |   |  |   |   |   |  |
| Hamilton         |                             |                             | 6439                 |                        | 6474        |      |   |  |   |   |   |  |
| Marcellus        |                             |                             | 6474                 |                        | 6540        |      |   |  |   |   |   |  |
| Onondaga         |                             |                             | 6540                 |                        | 6535        |      |   |  |   |   |   |  |
| 8.5" Curve       | 5-1/2" 23# P-110 HC CDC HTQ | LP TMD / TVD                | 15830                |                        | 6535        |      | 11.5ppg-12.5ppg SOBM  | Run 1 spiral centralizer every 3 joints from the 1st 5.5" long joint to the top of the curve.  |   |   |   |  |
| 8.5" Lateral     |                             | Onondaga                    | 6540                 |                        | 6535        |      |   |  |   |   |   |  |
|                  |                             | Onondaga                    | 6540                 |                        | 6535        |      |   |  |   |   |   |  |
|                  |                             | Onondaga                    | 6540                 |                        | 6535        |      |   |  |   |   |   |  |
|                  |                             | Onondaga                    | 6540                 |                        | 6535        |      |   |  |   |   |   |  |
|                  |                             | Onondaga                    | 6540                 |                        | 6535        |      |   |  |   |   |   |  |
|                  |                             | Onondaga                    | 6540                 |                        | 6535        |      |   |  |   |   |   |  |
|                  |                             | Onondaga                    | 6540                 |                        | 6535        |      |   |  |   |   |   |  |
|                  |                             | Onondaga                    | 6540                 |                        | 6535        |      |   |  |   |   |   |  |
|                  |                             | Onondaga                    | 6540                 |                        | 6535        |      |   |  |   |   |   |  |

LP @ 6535' TVD / 7230' MD

8.5" Hole - Cemented Long String  
5-1/2" 23# P-110 HC CDC HTQ

+/-8400' ft Lateral

TD @ +/-6535' TVD  
+/-16930' MD

4/17/19  
VAP

MND23 Well Pad (N-1H to N-6H)  
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    |                  |         |               |
| 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   |   |                 |   |            |                                   |          |               |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| 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    |  |        |             |                                   |         |               |                  |         |               |
| Ingredient name                                      | %                | CAS number   |   |                 |   |            |                                   |          |               |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| bentonite  | 90 - 100         | 1302-78-9  |   |                 |   |            |                                   |          |               |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| Crystalline silica: Quartz (SiO2)                    | 5 - 10           | 14808-60-7   |   |                 |   |            |                                   |          |               |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| 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    |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| Ingredient name                                      | %                | CAS number   |   |                 |   |            |                                   |          |               |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| Calcium chloride                                     | 90 - 100         | 10043-52-4   |   |                 |   |            |                                   |          |               |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| 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           |          |               |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| Ingredient name                                      | %                | CAS number   |   |                 |   |            |                                   |          |               |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| No hazardous ingredient                              |                  |  |   |                 |   |            |                                   |          |               |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| 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      |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| Ingredient name                                      | %                | CAS number   |   |                 |   |            |                                   |          |               |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| Tributyl phosphate                                   | 90 - 100         | 126-73-8   |   |                 |   |            |                                   |          |               |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| Granulated Sugar                                     | Retarder         | Used to retard cement returns at surface.  | <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       |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| Ingredient name                                      | %                | CAS number   |   |                 |   |            |                                   |          |               |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| Sucrose  | 90 - 100         | 57-50-1  |   |                 |   |            |                                   |          |               |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| EC-1   |                  | 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>Calcium magnesium oxide</td> <td>90 - 100</td> <td>37247-91-9</td> </tr> </tbody> </table>  | Ingredient name | % | CAS number | Calcium magnesium oxide           | 90 - 100 | 37247-91-9    |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| Ingredient name                                      | %                | CAS number   |   |                 |   |            |                                   |          |               |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| Calcium magnesium oxide                              | 90 - 100         | 37247-91-9   |   |                 |   |            |                                   |          |               |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| 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           |          |               |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| Ingredient name                                      | %                | CAS number   |   |                 |   |            |                                   |          |               |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| No hazardous ingredient                              |                  |  |   |                 |   |            |                                   |          |               |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| 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     |  |        |             |                                   |         |               |                  |         |               |
| Ingredient name                                      | %                | CAS number   |   |                 |   |            |                                   |          |               |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| 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 - 50</td> <td>Trade secret.</td> </tr> </tbody> </table>  | Ingredient name | % | CAS number | Organic acid salt                 | 40 - 50  | Trade secret. |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| Ingredient name                                      | %                | CAS number   |   |                 |   |            |                                   |          |               |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| Organic acid salt                                    | 40 - 50          | 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-Glucopyranose, 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-Glucopyranose, oligomeric, C10-16-alkyl glycosides | 5 - 10 | 110615-47-9 | Alkylarylsulfonate amine salt     | 1 - 5   | Trade secret. | Polyoxyalkylenes | 0.1 - 1 | Trade secret. |
| Ingredient name                                      | %                | CAS number   |   |                 |   |            |                                   |          |               |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| 2-Butoxyethanol                                      | 20 - 30          | 111-76-2   |   |                 |   |            |                                   |          |               |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| Proprietary surfactant                               | 10 - 20          | Trade secret.  |   |                 |   |            |                                   |          |               |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| D-Glucopyranose, oligomeric, C10-16-alkyl glycosides | 5 - 10           | 110615-47-9  |   |                 |   |            |                                   |          |               |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| Alkylarylsulfonate amine salt                        | 1 - 5            | Trade secret.  |   |                 |   |            |                                   |          |               |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |
| Polyoxyalkylenes                                     | 0.1 - 1          | Trade secret.  |   |                 |   |            |                                   |          |               |                                   |         |               |  |        |             |                                   |         |               |                  |         |               |

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**List of Frac Additives by Chemical Name and CAS #****MND23 Well Pad (N-1H to N-6H)**

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

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WW-9  
(4/16)

API Number 47 - \_\_\_\_\_ - \_\_\_\_\_  
Operator's Well No. MND23 N-3H

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 494501907

Watershed (HUC 10) Short Creek - Ohio River Quadrangle Powhatan Point 7.5'

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

Will a pit be used? Yes  No

If so, please describe anticipated pit waste: NA

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

Proposed Disposal Method For Treated Pit Wastes:

- 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, cuttings and fluids will be collected in a closed loop system, re-used or hauled to an approved disposal site or landfill.

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

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

Additives to be used in drilling medium? Water, Soap, KCl, Barite, Base Oil, Wetting Agents

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

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.

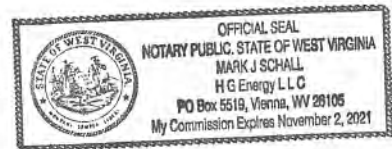
Company Official Signature Diane White  
Company Official (Typed Name) Diane White  
Company Official Title Agent

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Subscribed and sworn before me this 17th day of April, 2019

[Signature] Notary Public

My commission expires 11/2/2021



HG Energy II Appalachia, LLC

Proposed Revegetation Treatment: Acres Disturbed 10.5 Acres 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   | <u>40</u> |
| Ladino Clover | <u>5</u>  |

| Seed Type     | lbs/acre  |
|---------------|-----------|
| Tall Fescue   | <u>40</u> |
| Ladino Clover | <u>5</u>  |

Maintain E&S controls through the drilling and completion process

Attach:

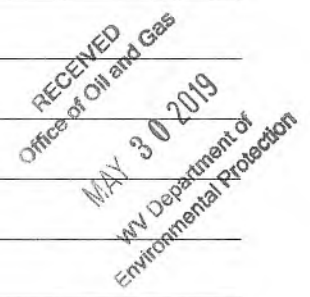
Maps(s) of road, location, pit and proposed area for land application (unless engineered plans including this info have been provided). If water from the pit will be land applied, include dimensions (L x W x D) of the pit, and dimensions (L x W), and area in acreage, of the land application area.

Photocopied section of involved 7.5' topographic sheet.

Plan Approved by: *Jim Unluoker*

Comments: Pre-seed/mulch as soon as reasonably possible per regulation.

Upgrade E&S if needed per WV DEP E&S manual.



Title: Oil & Gas Inspector Date: 4/17/19

Field Reviewed? (  ) Yes (  ) No

# Cuttings Disposal/Site Water

## Cuttings -Haul off Company:

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

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

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

## Disposal Locations:

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

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

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

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

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

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

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

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

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

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

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

**Water Haul off Companies:**

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

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

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

Nuverra Environmental Solutions  
11942 Veterans Memorial Highway  
Masontown, WV 26542

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

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

**Disposal Locations:**

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

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

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

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

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

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

Equipment Transport  
1 Tyler Court  
Carlisle, PA 17015

Myers Well Service, \_\_\_\_\_  
2001 Ballpark Court  
Export, PA 15632

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

Nichols 1-A (SWIW #13)  
Permit # 3862  
300 Cherrington Pkwy, Suite 200  
Coraopolis, PA 15108  
412-829-7275

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 78708  
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 Bu keya 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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**HG Energy II Appalachia, LLC**

**Site Safety Plan**

**MND 23 Well Pad  
1931 Nixon Ridge Lane  
Moundsville, Marshall County, WV 26041**

**March 2019: Version 1**

*Jan  
4/17/19*

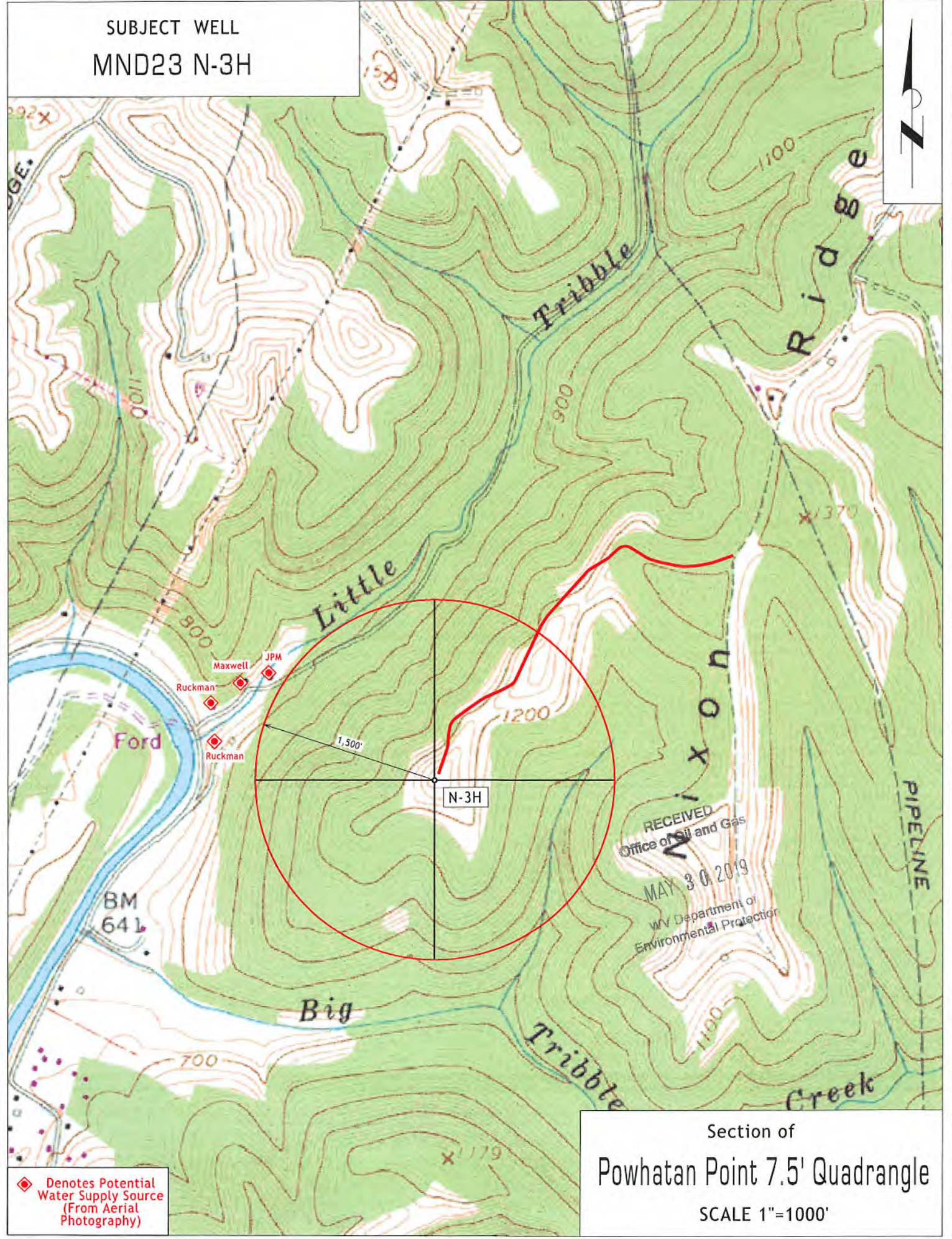
**For Submission to  
West Virginia Department of Environmental Protection,  
Office of Oil and Gas**

**HG Energy II Appalachia, LLC.**

**5260 Dupont Road  
Parkersburg, WV 26101**

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SUBJECT WELL  
MND23 N-3H

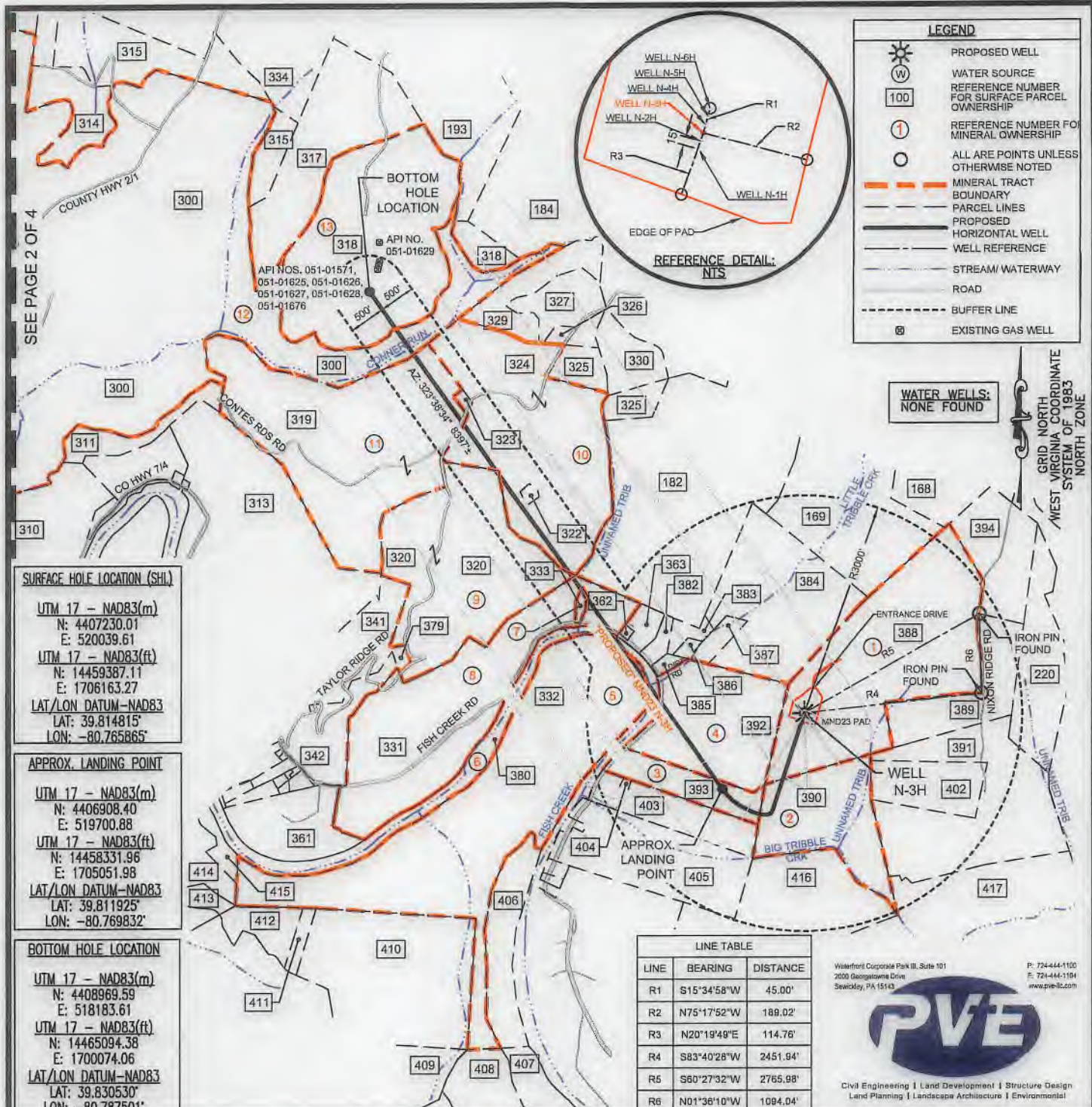


◆ Denotes Potential Water Supply Source (From Aerial Photography)

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Section of  
Powhatan Point 7.5' Quadrangle  
SCALE 1"=1000'





**SURFACE HOLE LOCATION (SHL)**

UTM 17 - NAD83(m)  
N: 4407230.01  
E: 520039.61

UTM 17 - NAD83(ft)  
N: 14459387.11  
E: 1706163.27

LAT/LON DATUM-NAD83  
LAT: 39.814815°  
LON: -80.765865°

**APPROX. LANDING POINT**

UTM 17 - NAD83(m)  
N: 4406908.40  
E: 519700.88

UTM 17 - NAD83(ft)  
N: 14458331.96  
E: 1705051.98

LAT/LON DATUM-NAD83  
LAT: 39.811925°  
LON: -80.769832°

**BOTTOM HOLE LOCATION**

UTM 17 - NAD83(m)  
N: 4408969.59  
E: 518183.61

UTM 17 - NAD83(ft)  
N: 14465094.38  
E: 1700074.06

LAT/LON DATUM-NAD83  
LAT: 39.830530°  
LON: -80.787501°

FILE #: MND23 N-3H

DRAWING #: MND23 N-3H

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.: \_\_\_\_\_ L.L.S.: P.S. NO. 2269



(+) 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: BIG TRIBBLE CREEK-OHIO RIVER ELEVATION: 1240'

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

SURFACE OWNER: HG ENERGY II, APPALACHIA LLC. ACREAGE: 126.6

OIL & GAS ROYALTY OWNER: CNX GAS COMPANY ACREAGE: 126.6

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 / MARCELLUS ESTIMATED DEPTH: TVD: 6,535' ± TMD: 15,631' ±

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: FEBRUARY 26, 2019

OPERATOR'S WELL #: MND23 N-3H

API WELL # 47 51 02231HG A

STATE COUNTY PERMIT

PAGE: 1 OF 4

Waterford Corporate Park III, Suite 101  
2000 Georgetown Drive  
Sewickley, PA 15143

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F. 724-444-1194  
www.pve-llc.com

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Land Planning | Landscape Architecture | Environmental

|     |                                  |                                    |     |                                 |                                    |
|-----|----------------------------------|------------------------------------|-----|---------------------------------|------------------------------------|
| 168 | MCCLINTOCK DALE ET. UX.          | TAX MAP NO. 05-0004-0013-0000-0000 | 388 | HOLSTINE BERNARD W. & ROXANN L. | TAX MAP NO. 05-0004-0014-0000-0000 |
| 169 | FRANKLIN REAL ESTATE CO.         | TAX MAP NO. 05-0004-0015-0000-0000 | 389 | HOLSTINE BERNARD W. & ROXANN L. | TAX MAP NO. 05-0004-0014-0002-0000 |
| 182 | CONSOLIDATION COAL COMPANY       | TAX MAP NO. 05-0005-0012-0000-0000 | 390 | LEGG JAMES R. EST.              | TAX MAP NO. 05-0009-0003-0000-0000 |
| 183 | FRANKLIN REAL ESTATE CO.         | TAX MAP NO. 05-0005-0011-0000-0000 | 391 | MCCLINTOCK DALE EDWARD          | TAX MAP NO. 05-0009-0006-0000-0000 |
| 184 | CONSOLIDATION COAL COMPANY       | TAX MAP NO. 05-0002-0012-0000-0000 | 392 | RUCKMAN JESSIE GLADYS - LIFE    | TAX MAP NO. 05-0009-0001-0000-0000 |
| 193 | CONSOLIDATION COAL COMPANY       | TAX MAP NO. 05-0002-0005-0000-0000 | 393 | LEGG JEFFERY L.                 | TAX MAP NO. 05-0009-0002-0001-0000 |
| 220 | MORRIS FRED H ET UX              | TAX MAP NO. 05-0004-0009-0000-0000 | 394 | ANDERSON RHONDA MARIE           | TAX MAP NO. 05-0004-0014-0001-0000 |
| 298 | CONSOLIDATION COAL COMPANY       | TAX MAP NO. 05-0006-0011-0000-0000 | 402 | MCCLINTOCK DALE EDWARD          | TAX MAP NO. 05-0009-0005-0000-0000 |
| 299 | CONSOLIDATION COAL COMPANY       | TAX MAP NO. 05-0007-0003-0000-0000 | 403 | LEGG JAMES R EST                | TAX MAP NO. 05-0009-0002-0000-0000 |
| 300 | OHIO POWER CO.                   | TAX MAP NO. 05-0006-0003-0000-0000 | 404 | WHITE KENNETH E ET UX           | TAX MAP NO. 05-0009-0002-0002-0000 |
| 301 | CONSOLIDATION COAL COMPANY       | TAX MAP NO. 05-0006-0005-0000-0000 | 405 | ARNOLD LLOYD C & JUDITH C       | TAX MAP NO. 05-0009-0035-0000-0000 |
| 302 | CONSOLIDATION COAL COMPANY       | TAX MAP NO. 05-0006-0006-0000-0000 | 406 | FRANCIS JAMES EDWARD ET UX      | TAX MAP NO. 05-0009-0009-0000-0000 |
| 303 | CONSOLIDATION COAL COMPANY       | TAX MAP NO. 05-0006-0001-0000-0000 | 407 | DALLISON LUMBER CO              | TAX MAP NO. 05-0009-0031-0000-0000 |
| 304 | CONSOLIDATION COAL COMPANY       | TAX MAP NO. 05-0001-0016-0000-0000 | 408 | ARRICK DAVID H ET UX            | TAX MAP NO. 05-0011-0004-0000-0000 |
| 305 | CONSOLIDATION COAL COMPANY       | TAX MAP NO. 05-0001-0013-0000-0000 | 409 | RINE WALTER C                   | TAX MAP NO. 05-0011-0002-0000-0000 |
| 306 | OHIO POWER CO.                   | TAX MAP NO. 05-0006-0010-0000-0000 | 410 | JACKSON JAMES B JR ET UX        | TAX MAP NO. 05-0008-0009-0000-0000 |
| 307 | CNX GAS COMPANY LLC.             | TAX MAP NO. 05-0007-0005-0000-0000 | 411 | WHITT PAUL                      | TAX MAP NO. 05-0011-0001-0005-0000 |
| 308 | CONSOLIDATION COAL COMPANY       | TAX MAP NO. 05-0007-0002-0000-0000 | 412 | MOORE RANDYLYN ET AL            | TAX MAP NO. 05-0011-0001-0000-0000 |
| 309 | CONSOLIDATION COAL COMPANY       | TAX MAP NO. 05-0007-0003-0000-0000 | 413 | YOHU RONALD G ET AL             | TAX MAP NO. 05-0007-0032-0000-0000 |
| 310 | CONSOLIDATION COAL COMPANY       | TAX MAP NO. 05-0007-0004-0000-0000 | 414 | ROUPE WILLIAM N ET UX           | TAX MAP NO. 05-0007-0031-0000-0000 |
| 311 | CONSOLIDATION COAL COMPANY       | TAX MAP NO. 05-0006-0004-0000-0000 | 415 | CAMPBELL BRUCE S                | TAX MAP NO. 05-0007-0031-0001-0000 |
| 313 | CONSOLIDATION COAL COMPANY       | TAX MAP NO. 05-0008-0002-0000-0000 | 416 | ARNOLD LLOYD C. & JUDITH C.     | TAX MAP NO. 05-0009-0041-0000-0000 |
| 314 | CONSOLIDATION COAL COMPANY       | TAX MAP NO. 05-0006-0002-0000-0000 | 417 | STOUT JAMES L.                  | TAX MAP NO. 05-0009-0007-0000-0000 |
| 315 | CONSOLIDATION COAL COMPANY       | TAX MAP NO. 05-0002-0002-0000-0000 |     |                                 |                                    |
| 316 | CONSOLIDATION COAL COMPANY       | TAX MAP NO. 05-0002-0001-0000-0000 |     |                                 |                                    |
| 317 | CONSOLIDATION COAL COMPANY       | TAX MAP NO. 05-0006-0001-0000-0000 |     |                                 |                                    |
| 318 | CONSOLIDATION COAL COMPANY       | TAX MAP NO. 05-0005-0002-0000-0000 |     |                                 |                                    |
| 319 | OHIO POWER CO.                   | TAX MAP NO. 05-0005-0003-0000-0000 |     |                                 |                                    |
| 320 | SANCHEZ GENEVA BASSETT           | TAX MAP NO. 05-0005-0004-0000-0000 |     |                                 |                                    |
| 322 | ROBBINS JAMES E & DIANA C        | TAX MAP NO. 05-0005-0005-0000-0000 |     |                                 |                                    |
| 323 | MCGINNIS TIMOTHY L SR ET UX.     | TAX MAP NO. 05-0003-0003-0001-0000 |     |                                 |                                    |
| 324 | OHIO POWER CO.                   | TAX MAP NO. 05-0005-0006-0000-0000 |     |                                 |                                    |
| 325 | FRANKLIN REAL ESTATE CO.         | TAX MAP NO. 05-0005-0007-0000-0000 |     |                                 |                                    |
| 326 | FRANKLIN REAL ESTATE CO.         | TAX MAP NO. 05-0005-0008-0000-0000 |     |                                 |                                    |
| 327 | FRANKLIN REAL ESTATE CO.         | TAX MAP NO. 05-0005-0009-0000-0000 |     |                                 |                                    |
| 329 | MCELROY COAL COMPANY             | TAX MAP NO. 05-0005-0009-0001-0000 |     |                                 |                                    |
| 330 | HEATHERINGTON ARDEN RAY          | TAX MAP NO. 05-0002-0013-0001-0000 |     |                                 |                                    |
| 331 | GATTS RICHARD L.                 | TAX MAP NO. 05-0008-0005-0000-0000 |     |                                 |                                    |
| 332 | MILLER EDWIN C.                  | TAX MAP NO. 05-0008-0007-0000-0000 |     |                                 |                                    |
| 333 | GATTS RICHARD L.                 | TAX MAP NO. 05-0008-0008-0000-0000 |     |                                 |                                    |
| 334 | CONSOLIDATION COAL COMPANY       | TAX MAP NO. 05-0002-0003-0000-0000 |     |                                 |                                    |
| 341 | DELBRUGGE EMERALD H JR.          | TAX MAP NO. 05-0008-0003-0000-0000 |     |                                 |                                    |
| 342 | BERISFORD BESSIE M. EST.         | TAX MAP NO. 05-0008-0004-0000-0000 |     |                                 |                                    |
| 361 | NIEMAN FRANCES E.                | TAX MAP NO. 05-0008-0004-0001-0000 |     |                                 |                                    |
| 362 | CLARK BEVERLY E.                 | TAX MAP NO. 05-0009-0001-0001-0000 |     |                                 |                                    |
| 363 | RUCKMAN SHELDON R. ET. AL.       | TAX MAP NO. 05-0009-0001-0004-0000 |     |                                 |                                    |
| 368 | OHIO POWER COMPANY               | TAX MAP NO. 05-0001-0022-0000-0000 |     |                                 |                                    |
| 379 | ARRUDA JOHN F. ET. UX.           | TAX MAP NO. 05-0005-0004-0001-0000 |     |                                 |                                    |
| 380 | VW DIVISION OF NATURAL RESOURCES |                                    |     |                                 |                                    |
| 382 | RUCKMAN MARVIN E, ET. UX.        | TAX MAP NO. 05-0009-0001-0003-0000 |     |                                 |                                    |
| 383 | MAXWELL WILLIAM L. SR. ET. UX.   | TAX MAP NO. 05-0004-0018-0000-0000 |     |                                 |                                    |
| 384 | HOLMAN TERRY L.                  | TAX MAP NO. 05-0004-0016-0000-0000 |     |                                 |                                    |
| 385 | RUCKMAN MARVIN E.                | TAX MAP NO. 05-0009-0001-0002-0000 |     |                                 |                                    |
| 386 | MAXWELL WILLIAM JR.              | TAX MAP NO. 05-0004-0019-0000-0000 |     |                                 |                                    |
| 387 | HOLMAN TERRY L.                  | TAX MAP NO. 05-0004-0017-0000-0000 |     |                                 |                                    |

Waterfront Corporate Park III, Suite 101  
2000 Georgetown Drive  
Sewickley, PA 15143



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

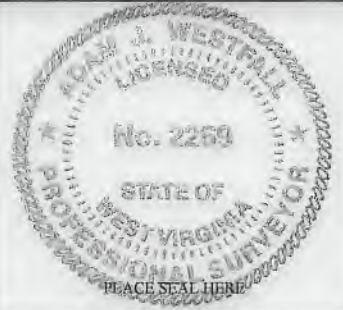
P: 724-446-1100  
F: 724-446-1104  
www.pve-nc.com

| LEGEND |   |
|--------|---|
| 100    | REFERENCE NUMBER FOR SURFACE PARCEL OWNERSHIP |

FILE #: MND23 N-3H  
DRAWING #: MND23 N-3H  
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.: \_\_\_\_\_ L.L.S.: P.S. NO. 2269



(+) 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: BIG TRIBBLE CREEK-OHIO RIVER ELEVATION: 1240'  
COUNTY/DISTRICT: MARSHALL / FRANKLIN QUADRANGLE: POWHATAN POINT, W. VA./OHIO  
SURFACE OWNER: HG ENERGY II, APPALACHIA LLC. ACREAGE: 126.6  
OIL & GAS ROYALTY OWNER: CNX GAS COMPANY ACREAGE: 126.6

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 / MARCELLUS  
WELL OPERATOR: HG ENERGY II APPALACHIA, LLC  
Address: 5260 DUPONT ROAD  
City PARKERSBURG State WV Zip Code 26101

DATE: FEBRUARY 26, 2019  
OPERATOR'S WELL #: MND23 N-3H  
API WELL # 47 51 02231H6A  
STATE COUNTY PERMIT

ESTIMATED DEPTH: TVD: 6,535' ± TMD: 15,631' ±  
DESIGNATED AGENT: DIANE C. WHITE  
Address: 5260 DUPONT ROAD  
City PARKERSBURG State WV Zip Code 26101

PAGE: 3 OF 4

WW-6A1  
(3/13)

Operator's Well No. \_\_\_\_\_

**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 Lease Chain \*\***

**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.

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

**HG Energy II Appalachia, LLC**

**MND23 N-3H**

**Lease Chains**

| HG Plat Number  | MPID   | Original Lessor                          | Original Lessee                 | Royalty              | Book | Page |
|-----------------|--|--|---------------------------------|----------------------|------|------|
| 1)              | 05-0004-0014-0000-0000   | MILLER CHARLES W                         | CHEVRON USA INC                 | Not less than<br>1/8 | 853  | 59   |
|                 |  | PARSONS PAUL ET UX                       | CHEVRON USA INC                 | Not less than<br>1/8 | 853  | 430  |
|                 |  | RUSSELL SHARON LYN                       | CHEVRON USA INC                 | Not less than<br>1/8 | 853  | 422  |
|                 |  | HUFF TIMOTHY ET UX                       | CHEVRON USA INC                 | Not less than<br>1/8 | 846  | 47   |
|                 |  | ARNOLD LLOYD C ET UX                     | CHEVRON USA INC                 | Not less than<br>1/8 | 846  | 39   |
|                 |  | CRONIN MARY JO                           | CHEVRON USA INC                 | Not less than<br>1/8 | 846  | 43   |
|                 |  | KURPIL RICHARD ET UX                     | CHEVRON USA INC                 | Not less than<br>1/8 | 863  | 594  |
|                 |  | CLIFTON CLARA MAE                        | CHEVRON USA INC                 | Not less than<br>1/8 | 853  | 426  |
|                 |  | EDWARDS GEORGE ET UX                     | CHEVRON USA INC                 | Not less than<br>1/8 | 853  | 418  |
|                 |  | KYLE DONNA FAE                           | CHEVRON USA INC                 | Not less than<br>1/8 | 853  | 449  |
|                 |  | CONNER JUDITH MAY                        | CHEVRON USA INC                 | Not less than<br>1/8 | 853  | 445  |
|                 |  | SCHEIBELHOOD PAUL ET AL                  | AB RESOURCES LLC                | Not less than<br>1/8 | 695  | 629  |
|                 |  | AB RESOURCES LLC                         | NPAR LLC                        |                      | 25   | 484  |
|                 |  | NPAR LLC                                 | Chevron USA INC<br>HG ENERGY II |                      | 756  | 332  |
| Chevron USA INC | APPALACHIA, LLC  |  | 41                              | 154                  |      |      |
| 2)              | 05-0009-0003-0000-0000   | James Redman Legg II ET AL               | HG ENERGY II                    | Not less than        | 1041 | 313  |
|                 |  |  | APPALACHIA, LLC                 | 1/8                  |      |      |
| 3)              | 05-0009-0002-0001-0000   | Jeffrey L. Legg                          | HG ENERGY II                    | Not less than        | 1041 | 316  |
|                 |  |  | APPALACHIA, LLC                 | 1/8                  |      |      |
| 4)              | 05-0009-0001-0000-0000,<br>05-0009-0001-0001-0000,<br>05-0009-0001-0002-0000,<br>05-0009-0001-0003-0000,<br>05-0009-0001-0004-0000 | Jessi Gladys Ruckman Et Al               | Noble Energy, Inc.              | Not less than        | 730  | 646  |
|                 |  |  | HG ENERGY II                    | 1/8                  |      |      |
|                 |  |  | NOBLE ENERGY INC                |                      | 39   | 1    |
| 5)              | 05-0008-0007-0000-0000   | Edwin C. Miller and Kiumberly Ann Miller | TH Exploration, LLC             | Not less than        | 957  | 257  |
|                 |  |  | HG ENERGY II                    | 1/8                  |      |      |
|                 |  |  | TH Exploration, LLC             |                      | 44   | 63   |
| 6)              | No tract # assigned  | WV Division of Natural Resources         | Noble Energy, Inc.              | Not less than        | 865  | 558  |
|                 |  |  | HG ENERGY II                    | 1/8                  |      |      |
|                 |  |  | NOBLE ENERGY INC                |                      | 39   | 1    |
| 7)              | 05-0008-0006-0000-0000   | Richard J. Gatts                         | Chevron USA INC                 | Not less than        | 899  | 479  |
|                 |  |  | HG ENERGY II                    | 1/8                  |      |      |
|                 |  |  | Chevron USA INC                 |                      | 41   | 154  |
| 8)              | 05-0008-0005-0000-0000   | Richard J. Gatts                         | Chevron USA INC                 | Not less than        | 899  | 479  |
|                 |  |  | HG ENERGY II                    | 1/8                  |      |      |
|                 |  |  | APPALACHIA, LLC                 | Not less than        |      |      |
|                 |  |  | Chevron USA INC                 |                      | 41   | 154  |
|                 |  |  | NOBLE ENERGY INC                | Fee                  | 39   | 1    |

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|     |                        |  |                                     |  |                                     |                      |     |     |
|-----|------------------------|--|-------------------------------------|--|-------------------------------------|----------------------|-----|-----|
| 9)  | 05-0005-0004-0000-0000 | Barbara Kay Ewing and Wilber E. Ewing                                    | NOBLE ENERGY INC                    | Not less than<br>1/8                                     | 842                                 | 34                   |     |     |
|     |                        | Charles Howard Bassett JR and Ruby D. Bassett                            | NOBLE ENERGY INC                    | Not less than<br>1/8                                     | 842                                 | 1                    |     |     |
|     |                        | Cynthia P. Hopkins, as Trustee of the Cynthia P. Hopkins Revocable Trust | NOBLE ENERGY INC                    | Not less than<br>1/8                                     | 841                                 | 366                  |     |     |
|     |                        | Elizabeth A. Strusbaugh and James R. Strusbaugh                          | NOBLE ENERGY INC                    | Not less than<br>1/8                                     | 841                                 | 370                  |     |     |
|     |                        | Janet and John Blankenship   | NOBLE ENERGY INC                    | Not less than<br>1/8                                     | 841                                 | 368                  |     |     |
|     |                        | Jean C. Thomas   | NOBLE ENERGY INC                    | Not less than<br>1/8                                     | 841                                 | 449                  |     |     |
|     |                        | Mary E. Bassett  | NOBLE ENERGY INC                    | Not less than<br>1/8                                     | 841                                 | 362                  |     |     |
|     |                        | Robert B. and Violet Thomas  | NOBLE ENERGY INC                    | Not less than<br>1/8                                     | 842                                 | 28                   |     |     |
|     |                        | Roger B. and Inken P. Rose   | NOBLE ENERGY INC                    | Not less than<br>1/8                                     | 841                                 | 358                  |     |     |
|     |                        | Ruth Ann and Furman F. Wallace   | NOBLE ENERGY INC                    | Not less than<br>1/8                                     | 841                                 | 364                  |     |     |
|     |                        | Ruth E. Bassett Meadows and O.W. Meadows Jr                              | NOBLE ENERGY INC<br>HG ENERGY II    | Not less than<br>1/8                                     | 842                                 | 38                   |     |     |
|     |                        |  | NOBLE ENERGY INC<br>APPALACHIA, LLC |  | 39                                  | 1                    |     |     |
|     |                        | 10)  | 05-0005-0006-0000-0000              | AEP Generation Resources Inc. and Kentucky Power Company | Noble Energy, Inc.<br>HG ENERGY II  | Not less than<br>1/8 | 829 | 157 |
|     |                        |  |                                     |  | NOBLE ENERGY INC<br>APPALACHIA, LLC |                      | 39  | 1   |
| 11) | 05-0005-0003-0000-0000 | AEP Generation Resources Inc. and Kentucky Power Company                 | Noble Energy, Inc.<br>HG ENERGY II  | Not less than<br>1/8                                     | 829                                 | 157                  |     |     |
|     |                        |  | NOBLE ENERGY INC<br>APPALACHIA, LLC |  | 39                                  | 1                    |     |     |
| 12) | 05-0006-0003-0000-0000 | Consolidation Coal Company   | CNX Gas Company, LLC                | Fee  | 646                                 | 493                  |     |     |
|     |                        | CNX Gas Company, LLC   | Noble Energy, Inc.<br>HG ENERGY II  | Fee  | 752                                 | 66                   |     |     |
|     |                        |  | NOBLE ENERGY INC<br>APPALACHIA, LLC | Fee  | 39                                  | 1                    |     |     |
| 13) | 05-0005-0002-0000-0000 | Margaret Games   | CNX Gas Company, LLC                | Not less than<br>1/8                                     | 763                                 | 441                  |     |     |
|     |                        | Elizabeth Patterson  | CNX Gas Company, LLC                | Not less than<br>1/8                                     | 763                                 | 437                  |     |     |
|     |                        | Charles J. Wiesner   | CNX Gas Company, LLC                | Not less than<br>1/8                                     | 763                                 | 429                  |     |     |
|     |                        | John Wiesner   | CNX Gas Company, LLC                | Not less than<br>1/8                                     | 763                                 | 433                  |     |     |
|     |                        | Kenneth Schmitt  | CNX Gas Company, LLC                | Not less than<br>1/8                                     | 763                                 | 421                  |     |     |
|     |                        | Mary Ellen Sedon   | CNX Gas Company, LLC                | Not less than<br>1/8                                     | 763                                 | 417                  |     |     |
|     |                        | Alfred Kaczorowski, Jr., & Sharon M. Kaczorowski, his wife               | CNX Gas Company, LLC                | Not less than<br>1/8                                     | 763                                 | 425                  |     |     |
|     |                        | CNX Gas Company, LLC   | Noble Energy, Inc.<br>HG ENERGY II  | 1/8  | 752                                 | 66                   |     |     |
|     |                        |  | NOBLE ENERGY INC<br>APPALACHIA, LLC |  | 39                                  | 1                    |     |     |

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

April 9, 2019

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

RE: Drilling Under Roads – MND23 N-3H  
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](mailto:dwhite@hgenergyllc.com) or 304-420-1119.

Very truly yours,

*Diane White*

Diane C. White

Enclosures

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Environmental Protection

WW-6AC  
(1/12)

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

**Date of Notice Certification:** 04/09/2019

**API No.** 47- -  
**Operator's Well No.** MND23 N-3H  
**Well Pad Name:** MND23

**Notice has been given:**

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

|             |                             |                           |                                    |                  |
|-------------|-----------------------------|---------------------------|------------------------------------|------------------|
| State:      | <u>West Virginia</u>        | UTM NAD 83                | Easting:                           | <u>520039.6</u>  |
| County:     | <u>Marshall</u>             |                           | Northing:                          | <u>4407230.0</u> |
| District:   | <u>Franklin</u>             | Public Road Access:       | <u>Nixon Ridge Road (SLS 21/1)</u> |                  |
| Quadrangle: | <u>Powhatan Point</u>       | Generally used farm name: | <u>CONSOL</u>                      |                  |
| Watershed:  | <u>Little Tribble Creek</u> |                           |                                    |                  |

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

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

**Required Attachments:**

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

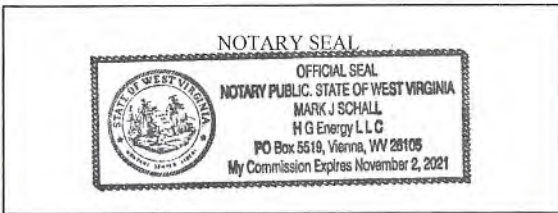
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(1/12)

**Certification of Notice is hereby given:**

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

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



Subscribed and sworn before me this 9th day of April, 2019.

*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](mailto:depprivacyofficer@wv.gov).

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**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:** 04/17/2019 **Date Permit Application Filed:** 04/23/2019

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.

Notice is hereby provided to:

- SURFACE OWNER(s) \* Not Noticed

Name: HG Energy II Appalachia, LLC  
 Address: 5260 Dupont Road  
Parkersburg, WV 26101

Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

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

Name: HG Energy II Appalachia, LLC  
 Address: 5260 Dupont Road  
Parkersburg, WV 26101

Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

- SURFACE OWNER(s) (Impoundments/Pits)

Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

- COAL OWNER OR LESSEE

Name: Murray Energy Corporation  
 Address: 46226 National Road  
St Clairsville, OH 43950

- COAL OPERATOR

Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

- WATER PURVEYOR(s)

Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

- OPERATOR OF ANY NATURAL GAS STORAGE FIELD

Name: \_\_\_\_\_  
 Address: \_\_\_\_\_

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\*Please attach additional forms if necessary

**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 also include: (1) a statement of the time limits for filing written comments; (2) who may file written comments; (3) the name and address of the secretary for the purpose of filing the comments and obtaining additional information; and (4) a statement that the persons may request, at the time of submitting written comments, notice of the permit decision and a list of persons qualified to test water.

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

**Water Well Testing:**

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

**Water Testing Laboratories:**

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

**Well Location Restrictions**

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

factors, if necessary.

**Written Comment:**

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

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

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

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

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

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

**Comment Requirements**

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

Disclaimer: All comments received will be placed on our web site <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(c), 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.

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API NO. 47- \_\_\_\_\_  
OPERATOR WELL NO. MND23 N-3H  
Well Pad Name: MND23

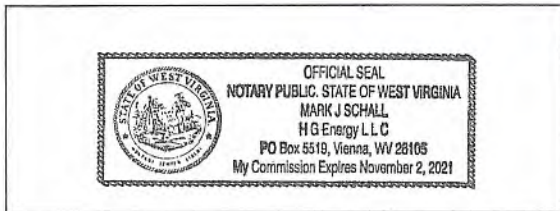
Pursuant to West Virginia Code § 22-6A-10(g), any person entitled to submit written comments to the secretary pursuant to subsection (a), section eleven of this article, shall also be entitled to receive from the secretary a copy of the permit as issued or a copy of the order modifying or denying the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

**Notice is hereby given by:**

Well Operator: HG Energy II Appalachia, LLC *Diane White* Address: 5260 Dupont Road  
Telephone: 304-420-1119 Parkersburg, WV 26101  
Email: dwhite@hgenergyllc.com Facsimile: 304-863-2172

**Oil and Gas Privacy Notice:**

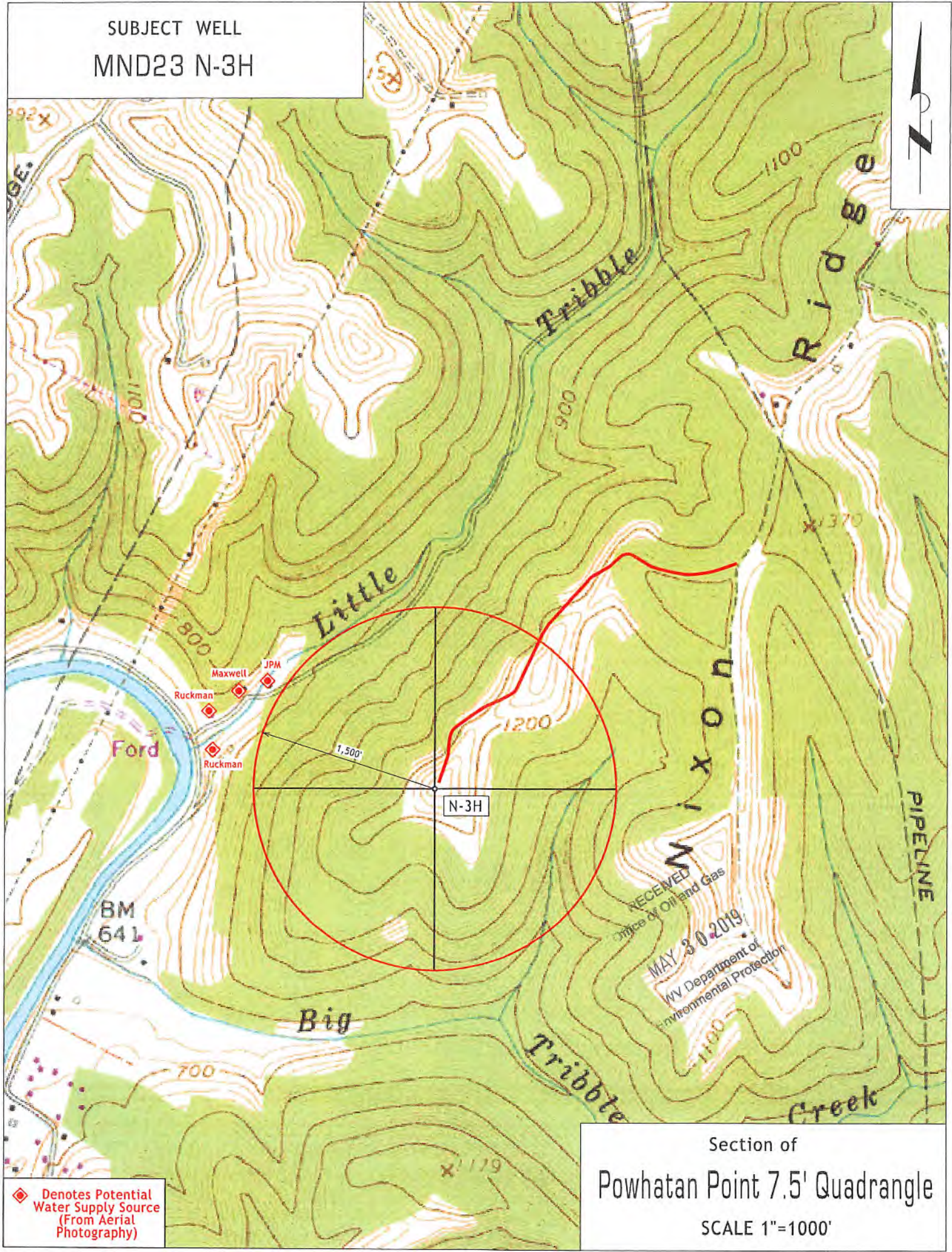
The Office of Oil and Gas processes your personal information, such as name, address and telephone number, as part of our regulatory duties. Your personal information may be disclosed to other State agencies or third parties in the normal course of business or as needed to comply with statutory or regulatory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



Subscribed and sworn before me this 9<sup>th</sup> day of APRIL, 2019.  
*[Signature]* Notary Public  
My Commission Expires 11/2/2021

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SUBJECT WELL  
MND23 N-3H



◆ Denotes Potential Water Supply Source (From Aerial Photography)

Section of  
Powhatan Point 7.5' Quadrangle  
SCALE 1"=1000'

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STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
NOTICE OF ENTRY FOR PLAT SURVEY

**Notice Time Requirement:** Notice shall be provided at least SEVEN (7) days but no more than FORTY-FIVE (45) days prior to entry

**Date of Notice:** 2/25/19 **Date of Planned Entry:** 3/6/19

**Delivery method pursuant to West Virginia Code § 22-6A-10a**

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

Pursuant to West Virginia Code § 22-6A-10(a), Prior to filing a permit application, the operator shall provide notice of planned entry on to the surface tract to conduct any plat surveys required pursuant to this article. Such notice shall be provided at least seven days but no more than forty-five days prior to such entry to: (1) The surface owner of such tract; (2) to any owner or lessee of coal seams beneath such tract that has filed a declaration pursuant to section thirty-six, article six, chapter twenty-two of this code; and (3) any owner of minerals underlying such tract in the county tax records. The notice shall include a statement that copies of the state Erosion and Sediment Control Manual and the statutes and rules related to oil and gas exploration and production may be obtained from the Secretary, which statement shall include contact information, including the address for a web page on the Secretary's web site, to enable the surface owner to obtain copies from the secretary.

**Notice is hereby provided to:**

SURFACE OWNER(s)

Name: HG Energy II Appalachia, LLC  
Address: 5260 Dupont Road  
Parkersburg, WV 26101

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

Name: \_\_\_\_\_  
Address: \_\_\_\_\_

COAL OWNER OR LESSEE

Name: Murray Energy Corporation  
Address: 46226 National Road  
St. Clairsville, OH 43950

MINERAL OWNER(s)

Name: - See Attached List -  
Address: \_\_\_\_\_

\*please attach additional forms if necessary

**Notice is hereby given:**

Pursuant to West Virginia Code § 22-6A-10(a), notice is hereby given that the undersigned well operator is planning entry to conduct a plat survey on the tract of land as follows:

State: West Virginia  
County: Marshall  
District: Franklin  
Quadrangle: Powhatan Point 7.5'

Approx. Latitude & Longitude: 39.814815 / 80.765865  
Public Road Access: Nixon Ridge Road - SLS 21/1  
Watershed: Short Creek - Ohio River  
Generally used farm name: Consol

Copies of the state Erosion and Sediment Control Manual and the statutes and rules related to oil and gas exploration and production may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57<sup>th</sup> Street, SE, Charleston, WV 25304 (304-926-0450). Copies of such documents or additional information related to horizontal drilling may be obtained from the Secretary by visiting [www.dep.wv.gov/oil-and-gas/pages/default.aspx](http://www.dep.wv.gov/oil-and-gas/pages/default.aspx).

**Notice is hereby given by:**

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

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

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**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](mailto:depprivacyofficer@wv.gov).

Page 1 Continued

Mineral Owners

MILLER, CHARLES W  
436 Limerick Drive  
Lynchburg, OH 45142

RUSSELL, SHARON LYN  
100 North Wabash  
Wheeling, WV 26003

ARNOLD, LLOYD C ET UX  
53661 Arman Hill Road  
Powhatan Point, OH 43942

KURPIL, RICHARD ET UX  
20 Sandy Drive  
Benwood, WV 26031

EDWARDS, GEORGE ET UX  
334 North Front Street  
Wheeling, WV 26003

CONNER, JUDITH MAY  
P.O. Box 611  
Moon Township, PA 15108

Jessi Gladys Ruckman Et Al  
P.O Box 89  
Sewickley, PA 15143

WV Division of Natural Resources  
324 Fourth Avenue  
South Charleston, WV 25303

Barbara Kay Ewing and Wilber E. Ewing  
12782 Eastchester Road  
Pickerington, OH 43147

PARSONS, PAUL ET UX  
780 Fairmont Pike  
Wheeling, WV 26003

HUFF, TIMOTHY ET UX  
32 Huff Lane  
Glendale, WV, 26038

CRONIN, MARY JO  
67564 North Ray Road  
St. Clairsville, OH 43950

CLIFTON, CLARA MAE  
24 Tear Drop Drive  
Valley Grove, WV 26060

KYLE, DONNA FAE  
1082 Cherry Hill Road  
Wheeling, WV 26003

SCHEIBELHOOD, PAUL ET AL  
RR 1 Box 216  
Proctor, WV 26055

Edwin C and Kiumberly Ann Miller  
185 Kirkman Lane  
Proctor, WV 26055

Richard J. Gatts  
2165 Fish Creek Road  
Proctor, WV 26055

Charles Howard Bassett JR  
and Ruby D. Bassett  
16 Pecan Drive  
Long Beach, MS 39560

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Mineral Owners

Cynthia P. Hopkins, as Trustee of the  
Cynthia P. Hopkins Revocable Trust  
7030 Half Moon Circle, Apt 214  
Hypoluxo, FL 33462

Elizabeth A. and James R. Strausbaugh  
11387 County Road 550  
Chillicothe, OH 45601

Janet and John Blankenship  
1 Cheves Creek Court  
North Augusta, SC 29860

Jean C. Thomas  
2573 Starlite Lane  
Port Charlotte, FL 33952

Mary E. Bassett  
35475 County Road 12  
Graysville, OH 45734

Robert B. and Violet Thomas  
6 Ford Street  
Moundsville, WV 26041

Roger B. and Inken P. Rose  
5663 Krystal Court  
Cincinnati, OH 45252

Ruth Ann and Furman F. Wallace  
904 Colonel Anderson Parkway  
Louisville, KY 40222

Ruth E. Bassett Meadows  
and O.W. Meadows Jr  
8109 Maryland Ave  
Marmet, WV 25315

AEP Generation Resources Inc.  
and Kentucky Power Company  
P.O BOX 16428  
Columbus OH 43215

Consolidation Coal Company  
1000 Consol Energy Drive  
Canonsburg, PA 15317

Margaret Games  
370 Antone Mountain Road  
Corinth, NY 12822

Elizabeth Patterson  
5719 E. US Highway 84  
Evant, TX 76525

Charles J. Wiesner  
157 Castlewood Drive  
Rutherfordton, NC 28139

John Wiesner  
1029 Dexter Corner Road  
Townsend, DE 19734

Kenneth Schmitt  
2230 County Road 28  
Mingo Junction, OH 43938

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Mineral Owners

Mary Ellen Sedon  
36 Mulberry Ave  
Moundsville, WV 26041

Alfred Kaczorowski, Jr.,  
& Sharon M. Kaczorowski, his wife  
27 Caxton Drive  
New Castle, DE 19720

HG ENERGY II APPALACHIA, LLC NOT NOTICED VIA CERTIFIED MAIL

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

**WAIVER**

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

**Surface Owner Waiver:**

I, Eric Grayson, for HG Energy II Appalachia, LLC, hereby state that I have read the notice provisions listed above and hereby waive the notice requirements under West Virginia Code § 22-6A-16(b) for the tract of land as follows:

|             |                             |                           |                                    |
|-------------|-----------------------------|---------------------------|------------------------------------|
| State:      | <u>West Virginia</u>        | UTM NAD 83 Easting:       | <u>520039.6</u>                    |
| County:     | <u>Marshall</u>             | UTM NAD 83 Northing:      | <u>4407230.0</u>                   |
| District:   | <u>Franklin</u>             | Public Road Access:       | <u>Nixon Ridge Road (SLS 21/1)</u> |
| Quadrangle: | <u>Powhatan Point</u>       | Generally used farm name: | <u>CONSOL</u>                      |
| Watershed:  | <u>Little Tribble Creek</u> |                           |                                    |

Name: Eric Grayson, VP, HG Energy II Appalachia, LLC  
Address: 5260 Dupont Road  
Parkersburg, WV 26101

Signature:   
Date: 04/03/2019

**Oil and Gas Privacy Notice:**

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

**RECEIVED**  
**Office of Oil and Gas**  
**MAY 30 2019**  
WV Department of  
Environmental Protection





## WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

## Division of Highways

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

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

March 18, 2019

Jill M. Newman  
 Deputy Commissioner

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

Subject: DOH Permit for the MND-23 Well Pad, Marshall County  
 MND-23 N-3H Well Site

Dear Mr. Martin,

This well site will be accessed from Permit #06-2019-0284 issued to HG Energy II Appalachia for access to the State Road for a well site located off of Marshall County 21/1 SLS.

The operator has signed a STATEWIDE 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 October 1, 2018.

Very Truly Yours,

Gary K. Clayton, P.E.  
 Regional Maintenance Engineer  
 Central Office O&G Coordinator

Cc: Diane White  
 HG Energy II, LLC  
 CH, OM, D-6  
 File

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 MAY 30 2019  
 WV Department of  
 Environmental Protection

**List of Frac Additives by Chemical Name and CAS #****MND23 Well Pad (N-1H to N-6H)**

| 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  |                  |

# CONSTRUCTION IMPROVEMENT PLANS WITH EROSION AND SEDIMENT CONTROLS HG MND 23 WELL PAD

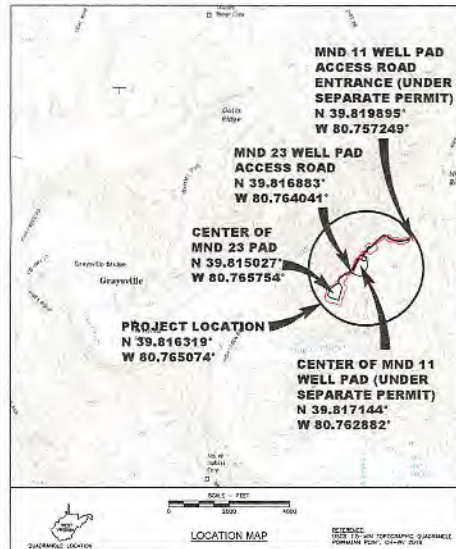
**APPROVED  
WVDEP OOG**

6/3/2019

MOUNDSVILLE  
MARSHALL COUNTY  
WEST VIRGINIA

### CONSTRUCTION SEQUENCE

1. Prior to commencement of any earth disturbance activity including clearing and grubbing, the registrant shall call West Virginia 811 by dialing 811 or 1-800-245-4848 to identify all utility lines. The registrant also must clearly delineate sensitive areas, riparian forest buffers, wetlands, the limits of clearing, and trees that are to be conserved within the project site, and shall install appropriate barriers where equipment may not be parked, staged, operated or located for any purpose.
2. Site access - This is the first land-disturbance activity to take place at the site and should provide BMPs to minimize accelerated erosion and sedimentation from the following areas: entrance to the site, construction routes, and areas designated for equipment or other use at the site including parking, stockpiles.
3. Sediment Barriers - install perimeter BMPs after the construction site is accessed, keeping associated clearing and grubbing limited to only that amount required for installing perimeter BMPs.
4. Land Clearing and Grading - Implement clearing and grading only after all downslope E&S BMPs have been constructed and stabilized.
5. Surface Stabilization - Apply temporary or permanent stabilization measures immediately to any disturbed areas where work has reached final grade, has been delayed or otherwise temporarily suspended.
6. Construction of Buildings, Utilities, and Paving - During construction install and maintain any additional erosion and sediment control BMPs, and implement any structural post construction stormwater BMPs that may be required.
7. Upon completion of pad grading, compact the pad to grade and begin placement of pad soil cement.
8. Final Stabilization, Topsoiling, Trees and Shrubs - After construction is completed, install stabilization BMPs including: permanent seeding, mulching and riprap, and complete implementation of stormwater BMPs in this last construction phase. Stabilize all open areas, including borrow and spoil areas, and remove all temporary BMPs and stabilize any disturbances associated with the removal of the BMP.



PREPARED FOR  
**HG ENERGY II APPALACHIA, LLC**  
5250 DUPONT ROAD  
PARKERSBURG, WEST VIRGINIA 26101  
(304) 420-1100

PREPARED BY  
**PENN ENVIRONMENTAL & REMEDIATION, INC.**  
111 RYAN COURT  
PITTSBURGH, PA 15205  
(412) 722-1222

| Final Development - Gravel Option              | Cu            | F#            | Stockpile  |
|--|---------------|---------------|------------|
| MND 23 Pad                                     | 69,450        | 69,470        | 690        |
| Access Road                                    | 100           | 500           | -490       |
| <b>Total</b>                                   | <b>69,550</b> | <b>69,970</b> | <b>400</b> |
| Total Fill Volume:                             |               |               | 400 Cu     |
| Shovel Traction Limit (at Earthwork)           |               |               | 6.187      |
| Exp. Bank Factor                               | 100%          |               | 1.200      |
| Est. Topsoil Stockpile Volume (Loose CY)       |               |               | 7,400      |
| Est. Topsoil To Be Respread on CUL/F# Slopes   |               |               | 1,000      |
| Minimum Total Stockpile Capacity Required (CY) |               |               | 6,240      |

Notes:  
1. Material balances for est. gross earthwork quantities only.  
2. Topsoil est. volume based on 6 inches average depth.  
3. Material balance and aggregate quantities based on estimates and may not be representative of actual quantities.  
4. Estimates do not reflect contractor pay volumes.

| Estimated Gravel Quantities             | MND 23 Top | MND 23 Access Road | TOTAL  |
|---|------------|--------------------|--------|
| 8" Soil Gener. (Feet <sup>3</sup> )     | 10,633     | 1,993              | 21,316 |
| 1/2" Depth of 1/2" (Feet <sup>3</sup> ) | 2,126      | -                  | 2,126  |
| Top Soil Cap                            | -          | 1,683              | 1,683  |

|  |         |
|--|---------|
| Estimated 12" Compost Filter Stock Length (L/F) (feet) | 1,168   |
| Estimated 24" Compost Filter Stock Length (L/F) (feet) | 1,869   |
| Estimated Total 12" Compost Filter Stock Length (L/F)  | 3,037   |
| Estimated Total Limit of Disturbance (Acres)           | 19.004  |
| Pad Peak Pre-Construction Elevation (Ft)               | 1273    |
| Well Pad Sub-base Elevation (Top of Soil Gener.) (Ft)  | 1236.60 |
| Well Pad Surface Elevation (Ft)                        | 1232.00 |

| SHT. NO. | SHEET TITLE                  |
|----------|------------------------------|
| 1        | TITLE SHEET                  |
| 2A-2E    | SITE DEVELOPMENT PLANS       |
| 3        | PAD & STOCKPILE SECTIONS     |
| 4A-4B    | ACCESS ROAD SECTIONS         |
| 5A-5F    | CONSTRUCTION NOTES & DETAILS |
| 6A-6C    | RESTORATION PLAN             |
| 7        | PROPERTY MAP                 |

| WELL # | LAT.        | LONG.       |
|--------|-------------|-------------|
| 1      | N 39.814735 | W 80.765892 |
| 2      | N 39.814774 | W 80.765878 |
| 3      | N 39.814814 | W 80.765865 |
| 4      | N 39.814854 | W 80.765851 |
| 5      | N 39.814894 | W 80.765838 |
| 6      | N 39.814934 | W 80.765824 |

WB83-NF WELL COORDINATES  
WELL ELEVATIONS = 1237.45

|                                      | LATITUDE    | LONGITUDE   |
|--------------------------------------|-------------|-------------|
| MND 23 WELL PAD ACCESS ROAD ENTRANCE | N 39.818885 | W 80.764041 |
| MND 11 WELL PAD ACCESS ROAD ENTRANCE | N 39.818995 | W 80.757249 |

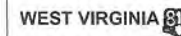
| RECORD OWNER               | RECORD LOT #   | RECORD AREA OF LOT | AREA WITHIN LCO |
|----------------------------|----------------|--------------------|-----------------|
| HG ENERGY PROPERTY         | TM 4 PARCEL 14 | 121,531 AC.        | 18,679 AC.      |
| NIXON RIDGE LN ROW         | N/A            | N/A                | 0.025 AC.       |
| TOTAL LIMIT OF DISTURBANCE |                |                    | 19.004 AC.      |

| REVISION | DATE       | DESCRIPTION                                   |
|----------|------------|---|
| 1        | 07/24/2019 | REVISE WELL PAD DIMENSIONS                    |
| 2        | 02/07/2018 | REVISE WELL PAD DIMENSIONS                    |
| 3        | 09/28/2019 | REVISE CELLAR DETAIL                          |
| 4        | 04/29/2019 | REVISED TO INCLUDE ACCESS TO PUBLIC ROAD      |
| 5        | 05/17/2019 | REVISION TO INCLUDE PERMANENT EROSION CONTROL |
| 6        | 09/29/2019 | REVISED PER WDEP COMMENTS                     |



TITLE SHEET  
HG MND 23  
MARSHALL COUNTY  
WEST VIRGINIA

PREPARED FOR  
**HG ENERGY II APPALACHIA, LLC**  
PARKERSBURG, WEST VIRGINIA



**CALL BEFORE YOU DIG!**

Dial 811 or  
**800.245.4848**  
Maryland Utility of West Virginia

APPROVED: MFP 07/16/2019  
CHECKED: MFP 07/02/2019  
DRAWN: MFP 12/20/2018  
PROJECT NO.: 4500-PAD07837



1. SERVICE UTILITY LINES ARE NOT SHOWN ON THIS PLAN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING, MARKING, AND REPLACING AS NECESSARY TO AVOID CONTINUAL SERVICE.

DRAWING NUMBER  
PAD07837-01  
SHEET 1

111 RYAN COURT, PITTSBURGH, PA 15205  
412-722-1222

