

#### west virginia department of environmental protection

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

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

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

HG ENERGY II APPALACHIA, LLC 5260 DUPONT ROAD

PARKERSBURG, WV 26101

Re:

Permit approval for KST5DHS

47-033-05817-00-00

This well work permit is evidence of permission granted to perform the specified well work at the location described on the attached pages and located on the attached plat, subject to the provisions of Chapter 22 of the West Virginia Code of 1931, as amended, and all rules and regulations promulgated thereunder, and to any additional specific conditions and provisions outlined in the pages attached hereto. Notification shall be given by the operator to the Oil and Gas Inspector at least 24 hours prior to the construction of roads, locations, and/or pits for any permitted work. In addition, the well operator shall notify the same inspector 24 hours before any actual well work is commenced and prior to running and cementing casing. Spills or emergency discharges must be promptly reported by the operator to 1-800-642-3074 and to the Oil and Gas Inspector.

Please be advised that form WR-35, Well Operators Report of Well Work is to be submitted to this office within 90 days of completion of permitted well work, as should form WR-34 Discharge Monitoring Report within 30 days of discharge of pits, if applicable. Failure to abide by all statutory and regulatory provisions governing all duties and operations hereunder may result in suspension or revocation of this permit and, in addition, may result in civil and/or criminal penalties being imposed upon the operators.

Per 35 CSR 4-5.2.g this permit will expire in two (2) years from the issue date unless permitted well work is commenced. If there are any questions, please feel free to contact me at (304) 926-0450.

...

James A. Martin

Chief

Operator's Well Number: KST5DHS

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

Horizontal 6A / Drilling Deeper

Date Issued: 3/6/2018

Promoting a healthy environment.

API Number: 33-05817 DD

## **PERMIT CONDITIONS**

West Virginia Code § 22-6A-8(d) allows the Office of Oil and Gas to place specific conditions upon this permit. Permit conditions have the same effect as law. Failure to adhere to the specified permit conditions may result in enforcement action.

#### **CONDITIONS**

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

API Number: 33-0581700

## PERMIT CONDITIONS

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

| API NO. 47- 33 - | 0581         | 1DU |
|------------------|--------------|-----|
| OPERATOR WELL I  | NO. KST5 DHS |     |
| Well Pad Name: F | (ST5         |     |

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

| l) Well Operat                   | tor: HG Er       | nergy II App     | alachia, 📙  | 494519932                              | Harrison        | Union        | West Milford                  |
|----------------------------------|------------------|------------------|-------------|--|-----------------|--------------|-------------------------------|
| •                                |                  |                  | _           | Operator ID                            | County          | District     | Quadrangle                    |
| 2) Operator's \                  | Well Numbe       | er: KST5 DH      | IS          | Well Pa                                | ad Name: KS     | Г5           |                               |
| 3) Farm Name                     | /Surface Ow      | vner: James      | Ivan McD    | onald Public Ro                        | oad Access: St  | ate County   | Road 19/18                    |
| 4) Elevation, c                  | urrent groun     | nd: <u>1134'</u> | El          | evation, proposed                      | d post-construc | ction: 1134' |                               |
| 5) Well Type                     | (a) Gas<br>Other | X                | _ Oil       | Une                                    | derground Stor  | age          |                               |
|                                  | (b)If Gas        | Shallow          | ×           | Deep                                   |                 |              |                               |
|                                  | (O)II Gus        | Horizontal       | -           |  |                 |              | -                             |
| 5) Existing Pac                  | d: Yes or No     | Yes              |             |  | _               |              |                               |
| •                                | •                | • • •            |             | ipated Thickness<br>ticipated pressure | =               | Pressure(s): |                               |
| 3) Proposed To                   | otal Vertical    | Depth: 690       | 00'         |  |                 |              | <u> </u>                      |
| ) Formation a                    | nt Total Vert    | ical Depth:      | Marcellus   | · · · · · · · · · · · · · · · · · · ·  |                 |              | Mars of                       |
| 0) Proposed 7                    | Total Measu      | red Depth:       | 19,024'     |  |                 | - 2hr        | of oil                        |
| 1) Proposed I                    | Horizontal L     | eg Length:       | 11,314'     |  |                 | <u> 50</u>   | on Deals                      |
| 2) Approxima                     | ate Fresh Wa     | ater Strata De   | epths:      | 135'                                   |                 |              |                               |
| 13) Method to                    | Determine I      | Fresh Water      | Depths:     | Offset well data                       |                 |              |                               |
| 4) Approxima                     | ate Saltwate     | r Depths: 1      | 570',2355'  |  |                 |              | ·                             |
| (5) Approxima                    | ate Coal Sea     | ım Depths: 5     | 30',390',10 | 060',1440'                             |                 |              |                               |
| 6) Approxima                     | ate Depth to     | Possible Vo      | id (coal mi | ne, karst, other):                     | None -          |              |                               |
| 17) Does Prop<br>directly overly |                  |                  |             | ns<br>Yes                              | N               | 10 X         |                               |
| (a) If Yes, pr                   | ovide Mine       | Info: Name       | e:          |  |                 |              |                               |
|                                  |                  | Deptl            | h:          |  |                 |              |                               |
|                                  |                  | Seam             | ı:          |  | <u></u>         |              |                               |
|                                  |                  | Owne             | er:         |  |                 |              | RECEIVED<br>Office of Oil and |

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WV Department of Page Physican Protection Page 19/3/09/2018

| API NO. 47 | 33.     | 05  | 5817     | DD |
|------------|---------|-----|----------|----|
| OPERATO    | OR WELL | NO. | KST5 DHS |    |

Well Pad Name: KST5

### 18)

### **CASING AND TUBING PROGRAM**

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

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

### **PACKERS**

| Kind:       | None | TIMED, C25   |
|-------------|------|--|
| Sizes:      | None | Office of Oil and Gas  |
| Depths Set: | None | JAN O E STATE OF THE STATE OF T |
|             |      | Environmental  |

#### Adkins, Laura L

From:

Ward, Samuel D

Diane White

Sent:

Tuesday, February 13, 2018 12:26 PM

To:

Adkins, Laura L

Cc: Subject:

Re: KST 5 revisions

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

Sent from my iPhone

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

Diane,

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

Thanks,

Laura

#### Laura L. Adkins

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

| API NO. 47- <u>33</u> | 0    | 581 | 21 | 2 | <u>D</u> |
|-----------------------|------|-----|----|---|----------|
| OPERATOR WELL         |      |     | -  |   |          |
| Well Dad Name:        | KST5 |     |    |   |          |

|  | 19 | ) Describe 1 | proposed w | ell work, | including t | the drilling and | plugging ba | ick of any pilot hole |
|--|----|--------------|------------|-----------|-------------|------------------|-------------|-----------------------|
|--|----|--------------|------------|-----------|-------------|------------------|-------------|-----------------------|

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

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

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

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

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

Intermediate - 1 Bow spring on each of the 1st two Jis. then every 4th jt. or inside surface casing Production - Run 1 spiral centralizer every 5 joints from the top of the curve to surface. Run 1 spiral centralizer every 3 joints from the 1st 5.5" long joint to the top of the curv

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

Conductor - "Conductor streamy set" - CTS wif 97s stat Cases A, 13 dopg), 122 cu-17vs, 600 cu-1 Fresh Water - "Suffsed Casing shready set" - CTS wif 90 stat Cases A, 15 stopg, 1.22 cu-17vs, 647 cu-1 Intermediate - "Intermediate Casing shready set" - CTS wif 90 stat Cases A, 15 stopg, 1.41 cu-17vs, 1090 cu-1 Production - Least : 1.45 pop DPZ-PNE:1 = 0.92 blower E01 = 0.75 gainty FP13L = 0.39 blowc MPA170, Talt: 14.8 ppg PNE:1 = 0.395 blowc R3 = 0.75 gainty FP13L = 50% blowc E01 = 0.75 gainty FP13L = 50% blowc E01 = 0.75 gainty FP13L = 50% blowc E01 = 0.75 gainty FP13L = 50% blowc MPA170, 20% Excess, Life

25) Proposed borehole conditioning procedures:

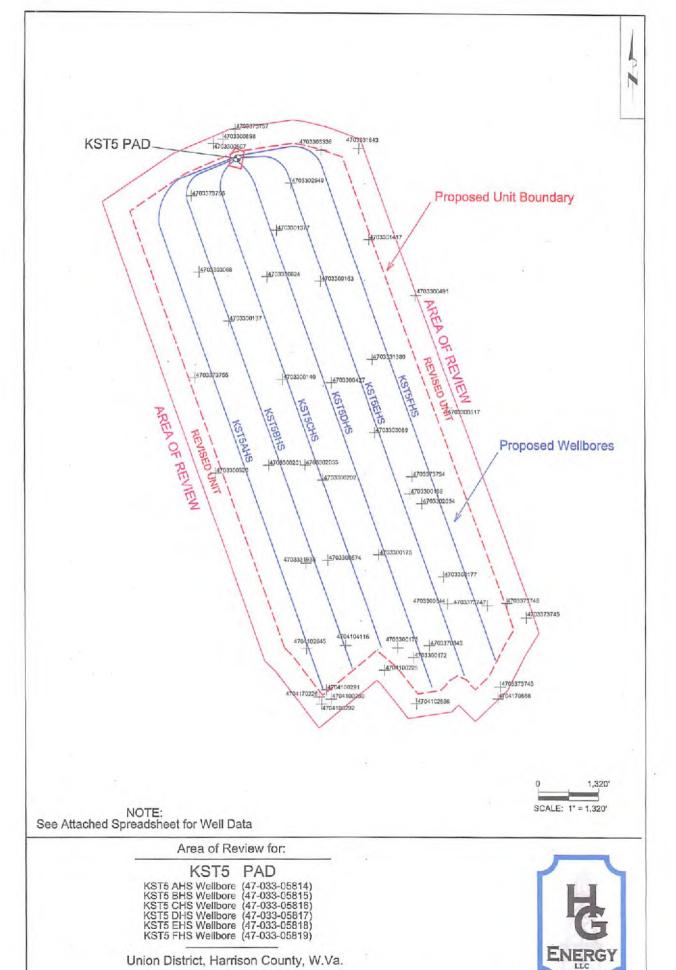
Constitutor - Fresh Water - Intermodate - Production - Once on bollow/TD with casing, circuista at max allowable pump rate for at least 2x bottoms up, or undi returns and pump pressures indicate the hole is clean. Carculate a minimum of one hole volume prior to pumping cement

Office of Oil and Gas

JAN 8 2018

WV Department of Environmental Protection

\*Note: Attach additional sheets as needed.



DATA SOURCE WVGES Data Set - 2017 03/09/2018

|     |            |          | MATCICA                   | NOTO THE CITY OF THE CONTROL OF THE | for the form form for |           |       |             |           |            |
|-----|------------|----------|---------------------------|---|-----------------------|-----------|-------|-------------|-----------|------------|
| D   | API        | COUNTY   | FARM                      | OPERATOR NAME   | FORMATION NAME        | WELL TYPE | DVT   | STATUS      | LATITUDE  | LONGITUDE  |
| +   | 4703300137 | Harrison | 15 Law 2                  | Dominion Energy Transmission Inc.   | Speechley             | Gas       | 3,015 | ACTIVE      | 39.161098 | -80.473614 |
| 2   | 4703300140 | Harrison | G Minter                  | Dominion Energy Transmission Inc.   | Speechley             | Gas       | 3,056 | PLUGGED     | 39,157614 | -80.469515 |
| 3   | 4703300163 | Harrison | J S Law 1                 | Dominion Energy Transmission Inc.   | Greenland Gap Fm      | Gas       | 2,878 | PLUGGED     | 39.163420 | -80.466534 |
| 4   | 4703300172 | Harrison | A W Rhodes                | Dominion Energy Transmission Inc.   | Hampshire Grp         | Storage   | 1,575 | ACTIVE      | 39.141090 | -80.459637 |
| 25  | 4703300173 | Harrison | A W Rhodes                | Dominion Energy Transmission Inc.   | NA                    | NA        | NA    | ACTIVE      | 39.141665 | -80.460845 |
| 9   | 4703300175 | Harrison | G Minter                  | Dominion Energy Transmission Inc.   | Gantz                 | Storage   | 1,720 | ACTIVE      | 39.147180 | -80.462245 |
| 7   | 4703300177 | Harrison | A W Rhodes                | Dominion Energy Transmission Inc.   | Gantz                 | Storage   | 1,800 | ACTIVE      | 39.145858 | -80.457289 |
| 89  | 4703300198 | Harrison | Willawi                   | Dominion Energy Transmission Inc.   | Thirty-foot           | Storage   | 2,005 | ACTIVE      | 39.150793 | -80.459825 |
| 6   | 4703300201 | Harrison | G Minter                  | Dominion Energy Transmission Inc.   | Thirty-foat           | Storage   | 2,344 | PLUGGED     | 39.152535 | -80.470633 |
| 10  | 4703300202 | Harrison | G Minter                  | Dominion Energy Transmission Inc.   | Gordon (undiff)       | Storage   | 2,042 | PLUGGED     | 39.151624 | -80,466475 |
| 11  | 4703300427 | Harrison | Guinn Minter              | Dominion Energy Transmission Inc.   | Benson                | Gas       | 4,520 | ACTIVE      | 39.157400 | -80.465748 |
| 12  | 4703300491 | Harrison | M G Law                   | Dominion Energy Transmission Inc.   | Benson                | Gas       | 4,261 | ACTIVE      | 39.162549 | -80.459266 |
| 13  | 4703300517 | Harrison | JSLaw                     | Dominion Energy Transmission Inc.   | Benson                | Gas       | 4,400 | ACTIVE      | 39.155873 | -80.456916 |
| 14  | 4703300520 | Harrison | M J Loughmiller           | Dominion Energy Transmission Inc.   | Benson                | Gas       | 4,548 | ACTIVE      | 39,152099 | -80.474732 |
| 15  | 4703300544 | Harrison | Dan Lee Stickel           | Dominion Energy Transmission Inc.   | Benson                | Gas       | 4,300 | ACTIVE      | 39.144240 | -80.455990 |
| 16  | 4703300574 | Harrison | Lee Roy & Marjorie Neeley | Dominion Energy Transmission Inc.   | Benson                | Gas       | 4,370 | ACTIVE      | 39.146874 | -80,466161 |
| 17  | 4703300607 | Harrison | J H/R C McDonald          | Dominion Energy Transmission Inc.   | Greenland Gap Fm      | Gas       | 4,769 | ACTIVE      | 39.171589 | -80.474729 |
| 18  | 4703300624 | Harrison | Rosemary Allman           | Dominion Energy Transmission Inc.   | Greenland Gap Fm      | Gas       | 4,515 | ACTIVE      | 39.163710 | -80.470633 |
| 19  | 4703300898 | Harrison | J H McDonald 1            | Jackson Fuel Corporation  | Big Injun (Grubr)     | - Gas     | 1,705 | - ACTIVE    | 39.171849 | -80.473987 |
| 20  | 4703301377 | Harrison | J Thrash                  | Dominion Energy Transmission Inc.   | Fifth                 | Gas       | 2,215 | ACTIVE      | 39,166468 | -80.469887 |
| 21  | 4703301417 | Harrison | Paul McDonald             | Dominion Energy Transmission Inc.   | Alexander             | Gas       | 4,782 | ACTIVE      | 39.165887 | -80.462806 |
| 22  | 4703302054 | Harrison | WıLaw                     | Dominion Energy Transmission Inc.   | Alexander             | Gas       | 4,800 | ACTIVE      | 39.150213 | -80.458893 |
| 23: | 4703302055 | Harrison | Lee Roy & Marjorle Neeley | Dominion Energy Transmission Inc.   | Benson                | Gas       | 4,536 | ACTIVE      | 39.152534 | -80.467838 |
| 24  | 4703302949 | Harrison | Consolidated Gas Supply   | Dominian Energy Transmission Inc.   | Greenland Gap Fm      | Gas       | 4,998 | ACTIVE      | 39.169237 | -80,468769 |
| 25  | 4703303068 | Harrison | Frank McDonald            | Dominion Energy Transmission Inc.   | Benson                | Gas       | 4,606 | ACTIVE      | 39,164000 | -80.475851 |
| 26  | 4703303089 | Harrison | David Allman              | Dominion Energy Transmission Inc.   | Alexander             | Gas       | 4,903 | ACTIVE      | 39.154411 | -80,462478 |
| 27  | 4703305336 | Harrison | James I McDonald          | CNX Gas Company   | NA                    | NA        | NA    | NOT DRILLED | 39.171172 | -80,466421 |
| 28  | 4703331380 | Harrison | M G Law                   | Hope Natural Gas Company  | Hampshire Grp         | Gas       | 2,253 | UNKNOWN     | 39,158776 | -80.462520 |
| 53  | 4703331843 | Harrison | WTLaw                     | Consolidated Gas Supply Corp.   | NA                    | NA        | NA    | UNKNOWN     | 39.171269 | -80.463552 |
| 30  | 4703331935 | Harrison | W R Neely                 | Consolidated Gas Supply Corp.   | NA                    | NA        | NA    | UNKNOWN     | 39.146730 | -80.467838 |
| 31  | 4703370343 | Harrison | Arthur Rhodes 2           | Hope Natural Gas Company  | NA                    | NA        | NA    | UNKNOWN     | 39.141795 | -80.458407 |
| 32  | 4703373743 | Harrison | R A Beeghley              | Hope Natural Gas Company  | NA                    | NA        | NA    | UNKNOWN     | 39.139328 | -80.453002 |
| 33  | 4703373745 | Harrison | Arthur Rhodes             | unknown   | NA                    | NA        | NA    | UNKNOWN     | 39.143391 | -80.450953 |
| 34  | 4703373746 | Harrison | W V Brannon               | unknown   | NA                    | NA        | NA    | UNKNOWN     | 39,144262 | -80.452444 |
| 35  | 4703373747 | Harrison | Arthur Rhodes             | unknown   | NA                    | NA        | NA    | UNKNOWN     | 39.144117 | -80,453935 |
| 98  | 4703373754 | Harrison | JS Law                    | unknown   | NA                    | NA        | NA    | UNKNOWN     | 39.151809 | -80.459638 |

| 37 | 4703373755                              | Harrison       | R C McDonald   | unknown                           | NA               | NA      | NA    | UNKNOWN   | 39.157759 | -80.476224 |
|----|---|----------------|--|-----------------------------------|------------------|---------|-------|-----------|-----------|------------|
| 38 | 4703373756                              | Harrison       | R C McDonald   | nnknown                           | NA .             | NA      | NA    | UNKNOWN   | 39.168511 | -80.476409 |
| 39 | 4703373757                              | Harrison       | R C McDonald   | nnknown                           | NA               | NA      | NA    | UNKNOWN   | 39.172430 | -80.473055 |
| 9  | 4704100225                              | Lewis          | W E Beeghley   | Coolumbia Natural Resources       | Gantz            | Gas     | 1,714 | ABANDONED | 39.140365 | -80.461872 |
| 41 | 4704100290                              | Lewis          | W E Beeghley   | Hope Natural Gas Company          | NA               | NA      | NA    | PLUGGED   | 39.138624 | -80.465969 |
| 42 | 4704100291                              | Lewis          | Wm Beeghley  | Reserve Exploration Co.           | NA               | NA      | NA    | PLUGGED   | 39.139204 | -80.466341 |
| 43 | 4704100292                              | Lewis          | George W Neely   | Hope Natural Gas Company          | Gordon           | Storage | 2,040 | PLUGGED   | 39.138334 | -80.466713 |
| 44 | 4704102645                              | Lewis          | W M Beeghley   | Consolidated Gas Supply Corp.     | NA               | Storage | NA    | ACTIVE    | 39.141670 | -80.467831 |
| 45 | 4704102856                              | Lewis          | Sarah E Hinzman  | Dominion Energy Transmission Inc. | Greenland Gap Fm | Storage | 8787  | ACTIVE    | 39.138335 | -80.459452 |
| 46 | 4704104116                              | Lewis          | James W Miller   | Dominion Energy Transmission Inc. | Greenland Gap Fm | Gas     | 4,493 | ACTIVE    | 39.141815 | -80.464852 |
| 47 | 4704170226                              | Lewis          | J M Beeghley   | Reserve Exploration Co.           | NA               | NA      | NA    | UNKNOWN   | 39.138769 | -80.466900 |
| 48 | 4704170666                              | Lewis          | W H Bond   | nnknown                           | NA               | NA      | NA    | UNKNOWN   | 39.138602 | -80.453190 |
|    | - C - C - C - C - C - C - C - C - C - C | 17 500/ HAD VA | THE PROPERTY OF THE PARTY OF THE PROPERTY OF T |                                   |                  |         |       |           |           |            |

SOURCE: WVGES DATASET (2017) and WVDEP WEBSITE

#### KST5 Well Pad Cement Additives

| 24   |   |
|------|---|
| 101  | ١ |
| 1/1/ | , |
| 00   |   |
| 0)   |   |

| Material Name | Material Type  | Material Description Premium NE-1 is a  | CAS # Ingredient name   | %   | CAS                               |
|---------------|--|---|---|---|-----------------------------------|
|               |  | portland cement with  | Portland cement   | 90 - 100  | CAS number<br>65997-15-1          |
|               |  | early compressive   | Calcium oxide   | 1 - 5   | 1305-78-8                         |
| emium NE-1    | Portland Cement  | strength properties.  | Magnesium oxide<br>Crystalline silica: Quartz (SiO2)                                      | 1-5   | 1309-48-4<br>14808-60-7           |
| amani ne-1    | rordand Cement   |   |   |   |                                   |
|               |  | Commonly called gel, it is  | Ingredient name   | %   | CAS number                        |
|               |  | a clay material used as a<br>cement extender and to                                       | bentonite   | 90 - 100  | 1302-78-9                         |
|               |  | control excessive free  | Crystalline silica: Quartz (SiO2)   | 5 - 10  | 14808-60-7                        |
| tonite        | Extender   | water.  |   |   |                                   |
| tome          | Extender   |   |   |   |                                   |
|               |  | A powdered, flaked or   | Ingredient name   | %   | CAS number                        |
|               |  | pelletized material used<br>to decrease thickening  | Calcium chloride  | 90 - 100  | 10043-52-4                        |
|               |  | time and increase the rate  |   |   |                                   |
| our Chicalds  | * Contract C | of strength development   |   |   |                                   |
| um Chloride   | Accelerator  |   |   |   |                                   |
|               |  | Graded (3/8 to 3/4 inch)  | Ingredient name   | %   | CAS number                        |
|               |  | cellophane flakes used as<br>a lost circulation material.                                 | No hazardous ingredient   |   |                                   |
| Flake         | Lost Circulation   | a rost directiation material.   |   |   |                                   |
|               |  |   |   |   |                                   |
|               |  | FP-13L is a clear liquid  |   |   |                                   |
|               |  | organic phosphate   |   |   |                                   |
|               |  | antifoaming agent used in   | Incredient name   | %   | CAS number                        |
|               |  | cementing operations. It is very effective  | Ingredient name Tributyl phosphate  | 90 - 100  | 126-73-8                          |
|               |  | minimizing air  |   | 55 755  | 127/27                            |
|               |  | entrapment and  |   |   |                                   |
|               |  | preventing foaming  |   |   |                                   |
|               |  | tendencies of latex<br>systems.   |   |   |                                   |
| 3L            | Foam Preventer   |   |   |   |                                   |
|               |  |   | Ingredient name   | %   | CAS number                        |
|               |  | Used to retard cement   | Sucrose   | 90 - 100  | 57-50-1                           |
| nulated Sugar | Retarder   | returns at surface. A proprietary product   |   |   |                                   |
|               |  | that provides expansive   |   |   |                                   |
|               |  | properties and Improves   |   |   |                                   |
|               |  | bonding at low to   | Ingredient name   | %<br>90 - 100   | 37247-91-9                        |
|               |  | moderate<br>temperatures.   | Calcium magnesium oxide   | 90 - 100  | 31241-91-9                        |
| 1             |  |   |   |   |                                   |
|               |  | Multi-purpose polymer   |   | T   |                                   |
|               |  | additive used to control<br>free fluid, fluid loss,                                       | Ingredient name   | %   | CAS number                        |
|               |  | rheology, and gas   | No hazardous ingredient   |   |                                   |
| A-170         | Gas Migration  | migration.  |   |   |                                   |
|               |  | A synthetic pozzolan,   |   |   |                                   |
|               |  | (primarily Silicon Dioxide).  |   |   |                                   |
|               |  | When blended with<br>cement, Pozzolan can be  | A   |   |                                   |
|               |  | used to create  | Ingredient name   | WED GOS %   | CAS number                        |
|               |  | lightweight cement  | Crystalline silica: Quartz (SiO2)  RECT Calcium oxide                                     | 5-10  | 14808-60-7<br>1305-78-8           |
|               |  | slurries used as either a   | Office  | 1/00 +  |                                   |
|               |  | filler slurry or a sulfate  | 720   | of 2017   |                                   |
|               |  | resistant completion  | 111 1   | . of  |                                   |
|               |  | resistant completion<br>cement.   | 00.   | ant O' n  |                                   |
| (Fly Ash)     | Base   |   | 00.   | epartment of Protection                                 |                                   |
| (Fly Ash)     | Base   | cement.   | W P   | repartment of<br>nental Protection                      |                                   |
| (Fly Ash)     | Base   |   | Environr<br>Environr  | pepartment of nental Protection                         | CAS number                        |
| Fly Ash)      | Base   | cement.  A low temperature retarder used in a wide range of slurry                        | Ingredient name Organic acid sait   | nental Protection                                       | CAS number Trade secret.          |
| (Fly Ash)     | Base   | cement.  A low temperature retarder used in a wide range of slurry formulations to extend | Ingredient name   | nental Protection                                       |                                   |
| Fly Ash)      | Base<br>Retarder   | cement.  A low temperature retarder used in a wide range of slurry                        | Ingredient name   | nental Protection                                       |                                   |
| (Fly Ash)     |  | cement.  A low temperature retarder used in a wide range of slurry formulations to extend | Ingredient name Organic acid salt   | peparti Protection<br>mental Protection<br>%<br>40 - 50 | Trade secret.                     |
| : (Fly Ash)   |  | cement.  A low temperature retarder used in a wide range of slurry formulations to extend | Ingredient name Organic acid salt  Ingredient name  | peparti Protection<br>mental Protection<br>%<br>40 - 50 | Trade secret.  CAS number         |
|               |  | cement.  A low temperature retarder used in a wide range of slurry formulations to extend | Ingredient name Organic acid salt  Ingredient name 2-Butoxyethanol Proprietary surfactant | % 40 - 50 % 20 - 30 10 - 20                             | CAS number 111-76-2 Trade secret. |
|               |  | cement.  A low temperature retarder used in a wide range of slurry formulations to extend | Ingredient name Organic acid salt  Ingredient name 2-Butoxyethanol                        | mental Protection % 40 - 50                             | CAS number                        |

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

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

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

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| iii d         | ENERGY          |  |                    |   |   |  | Marcellus Sh<br>Harrison (  | KST5D Marcellus Shale Horizontal Harrison County, WV   |  |
|---------------|-----------------|--|--------------------|---|---|--|---|--|--|
|               |                 |  |                    | K   | KST5D SHL   |  |   | 245719.6N 1724071.6E   |  |
|               | •               | 1156'  |                    | x   | KST5D LP  |  | = = = =   | 245277.8N 1725089.5E   |  |
|               | 161             | 161.493°   |                    | KS  | KST5D BHL   |  |   | 234548.9N 1728680.9E   |  |
| HOLE          | CASING          | GEOLOGY  | TOP                | BASE  | MUD   | CEMENT   | CENTRALIZERS  | CONDITIONING   | COMMENTS                                   |
|               |                 |  |                    |   |   |  |   |  |  |
|               |                 |  |                    |   |   |  |   |  | Conductor casing = 0.438°                  |
| 24"           | 20"<br>94# J-55 | Conductor  | 0                  | 114   |   | C i S w/ 6/5 sks Class A, 15.6ppg,<br>1.22 cu-ft/sk, 820 cu-ft   | NA  | \  | wall thickness                             |
|               |                 | "Conductor already set"  |                    |   |   |  |   | \  | ied out 7-lead                             |
|               |                 | Fresh Water  | a                  | 135   |   |  |   |  |  |
|               | 13.3/8" 54 5#   | Surface Casing 'Already Set'   | 0                  | 981   |   | CTS w/ 700 sks Class A, 15 61000.  | Bow spring on 1st Jt.   | \  | Surface casing = 0,380" wall               |
| 17.5"         | J-55 BTC        | Coal(s)  | 80, 390,           | 80, 390, 1060, 1440   |   | 1,21 cu-fVsk, 847 cu-ft  | Then every 4th Jt. To<br>100 ft. from surface                                 |  | thickness<br>Burst=2730 psi                |
|               |                 | Little Lime / Big Lime / Injun   | 1459 / 1500 / 1575 | 1474 / 1575 / 1672  |   |  |   |  |  |
|               |                 | *Santz* / 50 Foot / 30 Foot  | 1852 / 1976 / 2054 | 1914 / 1985 / 2104  |   |  | 1 Bow spring on each  | \  | Intermediate easing = 0.359                |
| 12.25*        | 9-5/8" 36#      | Gordon Stray / Gordon / Fifth  | 2119 / 2162 / 2361 | 2162 / 2239 / 2391  |   | CTS w/ 780 sks Class A, 15ppg, 1.41 cu-ft/sk, 1099 cu-ft   | of the 1st two Jts. then<br>every 4th it.till inside                          | \  | wall thickness                             |
|               |                 | Bayard   | 2416               | 2434  |   |  | surface casing  | \  | Burst=3520 psi                             |
|               |                 | Intermediate Casing *Afready Set*  | 0                  | 2484  |   |  |   | \  |  |
| 8.5" Vertical |                 |  |                    |   | 9.0ppg<br>SOBM  |  | Run 1 spiral centralizer every 5 joints from the top of the curve to surface. |  |  |
|               |                 |  |                    |   |   | Lead: 14.5 ppg POZ:PNE-1 + 0.3%<br>bwoc R3 + 1% bwcc EC1 + 0.75<br>gal/sk FP13L + 0.3% bwoc MPA170   |   |  |  |
|               | 6-1/2"          | Benson   | 4376               | 4410  |   | Tail: 14.8 ppg PNE-1 + 0.35% bwoc<br>R3 + 0.75 gal/sk FP13L + 50% bwoc   |   | Once on bottom/TD with casing, circulate at max allowable pump rate for at least 2x bottoms up, or | wall thickness                             |
| 8.5" Curve    | 20#<br>P-110 HC | Cashaqua   | 5274               |   | 11.5ppg-  | ASCA1 + 0.5% bwoc MPA170   |   | until returns and pump pressures indicate the hole   | Burst=12640 psi<br>Note:Actual centralizer |
|               | соснта          | Geneseo  | 5644               | 8899  | name fidday   | Lead Yield=1,19  | Run 1 spiral centralizer  | prior to pumping cement.   | schedules may be changed                   |
|               |                 | Tully Limestone  | 9899               | 6796  |   | Tall Yield=1.94  | 1st 5.5" long joint to the  |  | ane to note conditions                     |
|               |                 | Hamilton   | 6796               | 6853  |   |  | top of the curve.   |  |  |
|               |                 | Marcellus  | 6853               | 6935  |   |  |   |  |  |
| 8.5" Lateral  |                 | TMD / TVD  | 19024              | 0069  | 11.5ppg-<br>12.5ppg SQBM  |  |   |  |  |
|               |                 | Onondaga / Huntersville Chert  | 6935 / 6967        | / 2969  |   |  |   |  |  |
| D 17710       | ×               | コート (1 × × × × × × × × × × × × × × × × × ×   | X. 8.5" Hole - Ce  | mented Long String  | Long String   | ×  | *   | X  | TD @ +/-6900' TVD                          |
| REC           |                 |  | 5-112" 20# P       | 5-1/2" 20# P-110 HC CDC HTQ   | STEER | and the second s | 200000000000000000000000000000000000000                                       | +1-19024' MD   | +/-19024' MD                               |
| E C           |                 | A CONTRACTOR OF THE PROPERTY OF THE PARTY OF |                    | それをいまいてはないのかのようないというからないできないというできないというからないというないというないというないというないというないというないというないとい | ***************************************   |  |   |  | C ID TO DO DE DO LO                        |

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

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

### FLUIDS/ CUTTINGS DISPOSAL & RECLAMATION PLAN

| Operator Name HG Energy II Appalachia, LLC OP Code 494519932  |   |
|---|---|
| Watershed (HUC 10) Middle West Fork Creek Quadrangle West Milford WV 7.5'   |   |
| Do you anticipate using more than 5,000 bbls of water to complete the proposed well work? Yes Vo  |   |
| Will a pit be used? Yes No 🗸  |   |
| If so, please describe anticipated pit waste: Closed loop - no utilization of a pit   |   |
| Will a synthetic liner be used in the pit? Yes No If so, what ml.?  | 5175250   |
| Proposed Disposal Method For Treated Pit Wastes:  | SDW 9/20/2017   |
| Land Application  | 9/20/201  |
| Underground Injection (UIC Permit Number See Attached Sheet   | )   |
| Reuse (at API Number_At next anticipated well  Off Site Disposal (Supply form WW-9 for disposal location)   |   |
| Other (Explain_   |   |
|   |   |
| Will closed loop system be used? If so, describe: Yes   |   |
| Drilling medium anticipated for this well (vertical and horizontal)? Air, freshwater, oil based, etc.   | ediate string then SOBM   |
| -If oil based, what type? Synthetic, petroleum, etc. Synthetic  |   |
| Additives to be used in drilling medium? Water, soap, KCI, barite   |   |
| Drill cuttings disposal method? Leave in pit, landfill, removed offsite, etc. Approved landfill   |   |
| -If left in pit and plan to solidify what medium will be used? (cement, lime, sawdust)_NA   |   |
| -Landfill or offsite name/permit number? Please see attached sheet  |   |
| Permittee shall provide written notice to the Office of Oil and Gas of any load of drill cuttings or associated waste re  | vioated at any  |
| West Virginia solid waste facility. The notice shall be provided within 24 hours of rejection and the permittee shall a where it was properly disposed.   |   |
| I certify that I understand and agree to the terms and conditions of the GENERAL WATER POLLUTION on August 1, 2005, by the Office of Oil and Gas of the West Virginia Department of Environmental Protection. I ur provisions of the permit are enforceable by law. Violations of any term or condition of the general permit and/or 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 s application form and all attachments thereto and that, based on my inquiry of those individuals immediately obtaining the information, I believe that the information is true, accurate, and complete. I am aware that the penalties for submitting false information, including the possibility of fine or imprisonment. | derstand that the other applicable submitted on this responsible for          |
| Company Official Signature Diene White  | RECEIVED<br>e of Oil and Gas  |
| Company Official (Typed Name) Diane White   | e of Oil and Gas  |
|   | T 0 1 2017  |
|   | Department of   |
| Subscribed and sworn before me this 19th day of September , 20 17   | nmental Protection  |
| Carsidy A. Boschan Notary Public  |   |
| My commission expires 7 31 2022   | OFFICIAL SEAL<br>STATE OF WEST VIRGINI<br>NOTARY PUBLIC<br>CASSIDY A. BOARDMA |

Operator's Well No. KST5 DHS

| 10   |   | 16.3 (pad built up further disturbance anticipated)  | . 60                  |
|--|---|--|-----------------------|
|  |   | 18.3 (pad built, no further disturbance anticipated) Prevegetation pl                                | 4 6.0                 |
| Lime 3   | Tons/acre or to con   | rect to pH 6.5   |                       |
| Fertilizer type 10-  |   |  |                       |
| Fertilizer amount_   | 500   | lbs/acre   |                       |
| Mulch_ Hay or S  | traw @ 2  | Tons/acre  |                       |
|  |   | Seed Mixtures  |                       |
| Т  | emporary  | Perma  | nent                  |
| Seed Type  | lbs/acre  | Seed Type  | lbs/acre              |
| Tall Fescue  | 40  | Tall Fescue  | 40                    |
| _adino Clover  | 5   | Ladino Clover  | 5                     |
|  | pit will be land applied, ion area.   | and application (unless engineered plans incluinclude dimensions (L $x W x D$ ) of the pit, and set. |                       |
| laps(s) of road, location, pi<br>rovided). If water from the<br>creage, of the land applicat                                     | pit will be land applied, ion area.  lved 7.5' topographic she                            | include dimensions (L x W x D) of the pit, and   |                       |
| laps(s) of road, location, pi<br>rovided). If water from the<br>creage, of the land applicat<br>hotocopied section of invo-      | pit will be land applied, ion area.  Ived 7.5' topographic she                            | include dimensions (L x W x D) of the pit, and ret.  | d dimensions (L x W), |
| laps(s) of road, location, pi<br>rovided). If water from the<br>creage, of the land applicat<br>hotocopied section of invo-      | pit will be land applied, ion area.  Ived 7.5' topographic she                            | include dimensions (L x W x D) of the pit, and   | d dimensions (L x W), |
| laps(s) of road, location, pirovided). If water from the creage, of the land applicat hotocopied section of involan Approved by: | pit will be land applied, ion area.  Ived 7.5' topographic she                            | include dimensions (L x W x D) of the pit, and ret.  | d dimensions (L x W), |
| laps(s) of road, location, pirovided). If water from the creage, of the land applicat hotocopied section of involan Approved by: | pit will be land applied, ion area.  Ived 7.5' topographic she                            | include dimensions (L x W x D) of the pit, and ret.  | d dimensions (L x W), |
| laps(s) of road, location, pirovided). If water from the creage, of the land applicat hotocopied section of involan Approved by: | pit will be land applied, ion area.  Ived 7.5' topographic she                            | include dimensions (L x W x D) of the pit, and ret.  | d dimensions (L x W), |
| laps(s) of road, location, pirovided). If water from the creage, of the land applicat hotocopied section of involan Approved by: | pit will be land applied, ion area.  Ived 7.5' topographic she                            | include dimensions (L x W x D) of the pit, and ret.  | d dimensions (L x W), |
| laps(s) of road, location, pirovided). If water from the creage, of the land applicat hotocopied section of involan Approved by: | pit will be land applied, ion area.  Ived 7.5' topographic she                            | include dimensions (L x W x D) of the pit, and ret.  | d dimensions (L x W), |
| laps(s) of road, location, pirovided). If water from the creage, of the land applicat hotocopied section of involan Approved by: | pit will be land applied, ion area.  Ived 7.5' topographic she                            | include dimensions (L x W x D) of the pit, and ret.  | d dimensions (L x W), |
| laps(s) of road, location, pirovided). If water from the creage, of the land applicat hotocopied section of involan Approved by: | pit will be land applied, ion area.  Ived 7.5' topographic she  Audo  and mulch all cut a | include dimensions (L x W x D) of the pit, and ret.  | d dimensions (L x W), |

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

WELL SITE SAFETY PLAN FOR:

## KST5 PAD

Union District, Harrison County, W.Va.

TOPOGRAPHIC MAP West Milford 7.5' Quadrangle RECEIVED Office of Oil and Gas

OCT 0 1 2017

WV Department of Environmental Protection

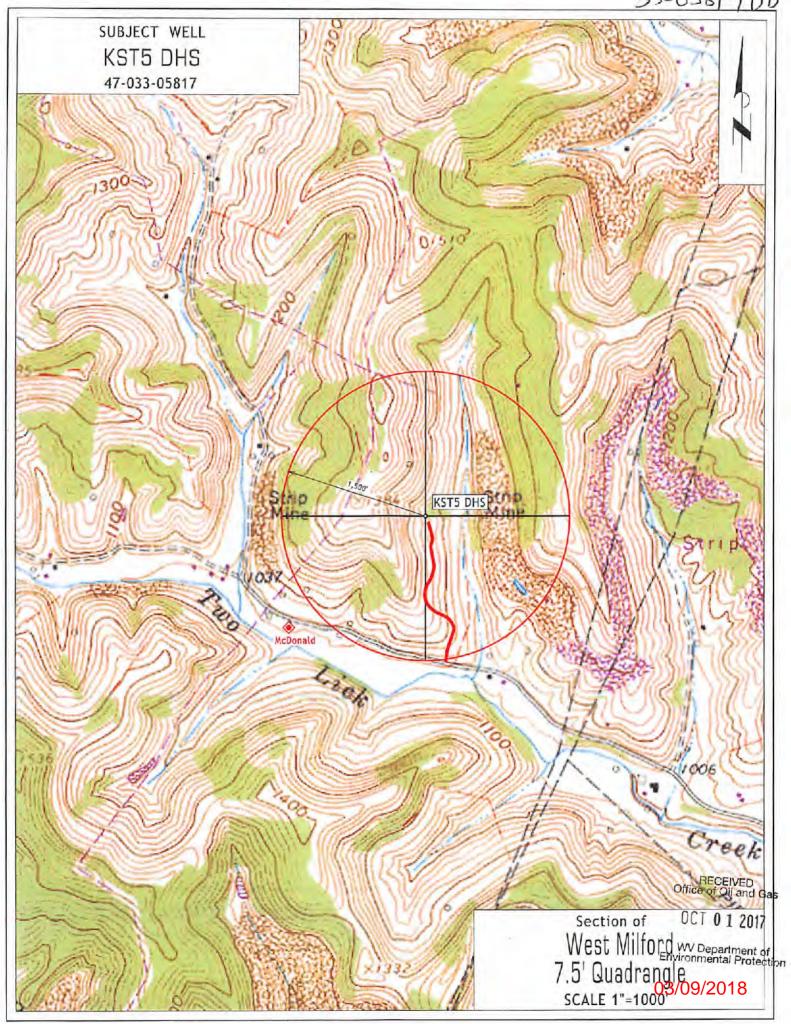




8/10/2017

03/09/201

33-0581700



## HG Energy II Appalachia, LLC

## Site Safety Plan

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

August 2017: Version 1

5000 9/20/2017

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

HG Energy II Appalachia, LLC

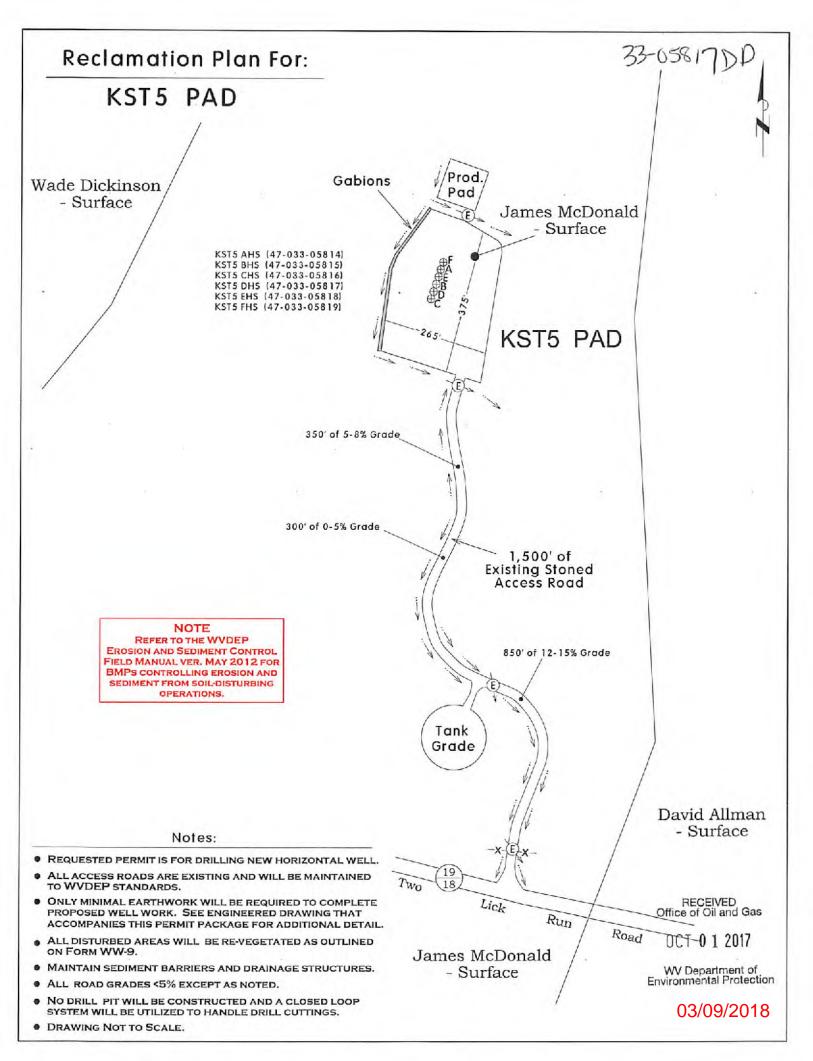
5260 Dupont Road

Parkersburg, WV 26101

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OCT 0 1 2017

WV Department of Environmental Protection



BHL is located on topo map 9,676 feet south of Latitude: 39'10'00"
SHL is located on topo map 13,732 feet south of Latitude: 39'12'30" is located on topo map \_feet south of Latitude: 39'12 PARCEL
A R. C. & M. B. MCDONALD
A M. & LYDIA D. MCDONA
B J. M. & EMMA THRASH—WI
M. L. & MYRTLE NUTTER
C J. M. & EMMA THRASH—WI
M. L. & MYRTLE NUTTER
D JAMES S. & SUSANNA LAW
E M. G. & I. L. LAW
W. J. & LUCY A. LAW
F GUINN & JANE MINTER
G GUINN & JANE MINTER GETAKE 33-00944 公甲 There are no water wells or developed springs within 260 of proposed well.
There are no existing buildings within 625 of proposed well.
Proposed well is greater than 100 from perennist DOMINION TRANSMISSION -TM/PAR 20-423/10 10° 10° locat UNNAMED TRIBUTARY -01419 STAKE streem, wetland, pond, reservoir or lake There are no native trout streams within 300' of There are no native trout streams within 300' of proposed well.
Proposed well is greater than 1000' from surface/groundwater Intake or public water supply. It is not the purpose or intention of this plat to represent surveyed locations of the surface or mineral parcels deplated hereon. The location of the boundary lines, as shown, are based on record deed descriptions, field switchers found and/or tax map position, unless otherwise noted. ted APPROXIMATE KICK OFF, POINT 33-04705 33-008870 99 ●33-01575 topo 33-00726 KST5DHS JAMES IVAN MCDONALD TM/PAR 20-423/8 map position, unless otherwise noted. 1 83-0137 SURFACE HOLE LOCATION (SHL) | KICK OFF POINT LOCATION (KOP) MED TRIBUTARY LICK CREEK 4,172 UTM 17-NADB3 N:4335840.19 E:545548.32 ● 33-01417 TWO LICK CREEK 33-00730 NAD27. W NORTH N:245704.37 E:1724164.38 LAT/LON DATUM-NAD83 LAT:39.170594 NAD27, WV NORTH N:245719.58 33-03068 33-0016 E:1724071.60 LAT/LON DATUM-NAD83 LAT:39.170632 DAVID BRYAN ALLMAN 33-00137 TM/PAR 20-423/9 BRADLEY S. & TERRY L. STUTTLER; JOELLEN F. ALLMAN (LE) TM/PAR 20-424/33 west LON:-80,473049 LON:-80.472721 33-01609 SHARÓN S. MCDONALD TM/PAR 20-424/47 99 UTM 17-NAD83 N:4332464.58 E:546980.88 500 UTM 17-NADB3 N:4335714.92 Longitude: Longitude: BRADLEY S. & TERRI L. STUTLER DM/PAR 20-444/2 NaD27, W NORTH N:245277.79 NAD27, W NORTH N:234548.94 33-004279 LEGEND E:172E680.89 <u>LAT/LON DATUM-NAD83</u> LAT:39.140101 LON:-80.456372 E:1725089.52 MARJORIE NEELY LAT/LON DATUM-NADB3 LAT:39.169450 TM/PAR 20-444/1 0 - TOPO MAP POINT 1 - WHI BRADLEY S. & TERRI L. STUTLER TM/PAR 20-444/3 80 - ALL ARE POINTS UNLESS OTHERWISE NOTED. 33-02055 201 33-00202 27 25 MINERAL TRACT 33-00201 BOUNDARY 300 - LESSORS CO ROUTE 35/ N 42'08'12" E N 18'44'56" W N 06'58'25" W N 16'06'12" E - PARCEL LINES 33-02054 - LEASE BOUNDARY JENNIFER K. NEELY TM/PAR 20,444/18 - WELL REFERENCE 33-00574 - ROAD WELL KST5DHS - STREAM CENTER LINE @33-00177 WELLS WITHIN 2400' (E) - EXISTING WELLS @33-00544 - PLUGGED WELLS IGNCHELDE RUN RO PM/PAR 20-444/19 41-02645 41-04116 33-00173 CENSED STATISHING Blue Mountain Inc. #41-00491 41-00492# #41-00490 1023 MASON DIXON HIGHW BURTON, WV 26562 PHONE: (304) 662-5486 GEORGE D SA I,THE UNDERSIGNED, HEREBY CERTIFY THAT THIS KST5DHS PLAT IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF AND SHOWS ALL THE INFORMATION REQUIRED BY DRAWING #: KST5DHS LAW AND THE REGULATIONS ISSUED AND PRESCRIBED BY 1" = 2000 THE DEPARTMENT OF ENVIRONMENTAL PROTECTION. SONAL SURIN SONAL SURVINION HER MINIMUM DEGREE Signed: OF ACCURACY: 1/2500 PROVEN SOURCE U.S.G.S. MONUMENT THOMAS 1498.81' R.P.E.: L.L.S.: P.S. No. 2000 PLACE SEAL HERE (+) DENOTES LOCATION OF WELL ON WEST DATE: JANUARY 03, 2018 UNITED STATES TOPOGRAPHIC MAPS WVDEP OPERATOR'S WELL#: KST5DHS OFFICE OF OIL & GAS 601 57TH STREET API WELL #: 058170 33 CHARLESTON, WV 25304 STATE COUNTY PERMIT Well Type: Oil Waste Disposal X Production Deep X Gas Liquid Injection Storage X Shallow MIDDLE WEST FORK CREEK WATERSHED: ELEVATION: \_\_ HARRISON / UNION QUADRANGLE: WEST MILFORD, WV 7.5' COUNTY/DISTRICT: JAMES IVAN MCDONALD ACREAGE: 176.000± SURFACE OWNER: OIL & GAS ROYALTY OWNER: R. C. MCDONALD & M. B. MCDONALD; A. M. MCDONALD & LYDIA D. MCDONALD ACREAGE: 1328.95± DRILL X CONVERT DRILL DEEPER REDRILL FRACTURE OR STIMU 3/09/2018 PLUG OFF OLD FORMATION PERFORATE NEW FORMATION PLUG & ABANDON CLEAN OUT & REPLUG OTHER CHANGE (SPECIFY): TARGET FORMATION: MARCELLUS TMD: 19,024'± ESTIMATED DEPTH: TVD: 6,900'± HG ENERGY II APPALACHIA, LLC WELL OPERATOR DESIGNATED AGENT DIANE C. WHITE 5260 DUPONT ROAD 5260 DUPONT ROAD Address Address Zip Code 26101 PARKERSBURG PARKERSBURG State W State Zip Code 26101

| W   | W-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 Sheets\*\*

RECEIVED
Office of Oil and Gas

OCT 0 1 2017

WV Department of Environmental Protection

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

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

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

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

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

HG Energy II Appalachia, LLC KSTS DHS

| 17-20-0423-0008-0000,<br>17-20-0423-0009-0000,<br>17-20-0424-0033-0000,<br>17-20-0424-0033-0000,<br>17-20-0424-0033-0000,<br>17-20-0424-0033-0000,<br>17-20-0424-0033-0000,<br>17-20-0424-0033-0000,<br>17-20-0424-0033-0000,<br>17-20-0424-0031-0000,<br>17-20-0424-0031-0000,<br>17-20-0424-0031-0000,<br>17-20-0424-0031-0000,<br>17-20-0424-0031-0000,<br>17-20-0424-0031-0000,<br>17-20-0424-0031-0000,<br>17-20-0424-0031-0000,<br>17-20-0424-0031-0000,<br>17-20-0424-0031-0000,<br>17-20-0424-0031-0000,<br>17-20-0424-0031-0000,<br>17-20-0424-0031-0000,<br>17-20-0424-0031-0000,<br>17-20-0424-0031-0000,<br>17-20-0424-0031-0000,<br>17-20-0424-0031-0000,<br>17-20-0424-0031-0000,<br>17-20-0424-0031-0000,<br>17-20-0424-0031-0000,<br>17-20-0424-0031-0000,<br>17-20-0424-0031-0000,<br>17-20-0424-0031-0000,   | LEGACY LEASE NUMBER | TAX MAP               | LEASE NUMBER | GRANTOR/LESSOR   | GRANTEE/LESSEE   | ROYALTY                               | DEED BOOK PAGE |
|--|---------------------|-----------------------|--------------|--|--|---------------------------------------|----------------|
| 13   15   15   15   15   15   15   15  |                     |                       |              |  | HODE NATITIBAL GAS COMPANY   | NOT JESS THAN 1/8                     | 720            |
| 17.86429000000000000000000000000000000000000   |                     |                       |              | MCDONALDET AL  | CONSOLIDATED GAS SUPPLY CORPERATION  | MERGER/NAME CHANGE                    | 757            |
| 17-5-04-20-00-00-00-00-00-00-00-00-00-00-00-00-  |                     |                       |              | HOPE NATIONAL GAS COMPANY                                | CONSOLIDATED GAS TRANSMISSION CORPERATION  | ASSENDENT                             | 136            |
| 17.9.062-2007000   Control C   |                     | 0000 0000 5000 50 50  |              | CONSCIDENCE GAS TOTALS CONTENTION                        | CNG GAS TRANSMISSION CORPERATION   | MERGER/NAME CHANGE                    | 15             |
| This best notes of the control interaction of    | FK026553            | 17-20-0423-0007-0000  |              | CNG GAS TRANSMISSION CORPERATION                         | DOMINION TRANSMISSION, INC   | MERGER/NAME CHANGE                    | 88             |
| The Sections of the Control of the   |                     |                       |              | DOMINION TRANSMISSION, INC                               | CNX GAS COMPANY, I.L.C.  | FARMOUT AGREEMENT                     | 1522           |
| 17-2-2-4-4-4-4-4-4-4-4-4-4-4-4-4-4-4-4-4-  |                     |                       |              | CNX GAS COMPANY. ILC                                     | NOBLE ENERGY, INC  | LIMITED PARTIAL ASSIGNMENT            | 1543           |
| 17-20-24-200-0000  |                     |                       |              | CNX GAS COMPANY, ILC                                     | NOBLE ENERGY, INC  | ASSIGNMENT                            | 1584           |
| 17.5 to 17.0 to 17.5   |                     |                       |              | NOBLE ENERGY, INC  | HG ENERGY II APPALACHIA, LLC   | ASSIGNMENT                            | СВТ            |
| 13-8-64-5000 0000   CONCENTION    |                     |                       |              | I M THRASH AND EMMA THRASH, HIS WIFE AND M.L. NUTTER AND |  |                                       | į              |
| 17-8-642-000-000   CONTRICTOR   |                     |                       |              |  | HOPE NATURAL GAS COMPANY   | NOT LESS THAN 1/8                     | 183            |
| 13-34-61-90000   |                     |                       |              | HOPE NATURAL GAS COMPANY                                 | - 1  | MERGER/NAME CHANGE                    | 903            |
| 17-26-64-000-000   CONSTITUTION OF A PROPERTY OF A PROPE   |                     |                       |              | CONSOLIDATED GAS SUPPLY CORPERATION                      | - 1  | ASSIGNMENT                            | 1136           |
| 17-3-647-9-00-000   Contention   | 10000000            | 17-20-0423-0009-0000, |              | CONSOLIDATED GAS TRANSMISSION CORPERATION                |  | MERGER/NAME CHANGE                    | 51             |
| 17.00.00.00.00.00.00.00.00.00.00.00.00.00  | FK0142/5            | 17-20-0423-0010-0000  |              | CNG GAS TRANSMISSION CORPERATION                         | ŀ  | MERGER/NAME CHANGE                    | 28             |
| 17-20-04-0039-000.   CHARLES AND CHARLES   |                     |                       |              | DOMINION TRANSMISSION, INC                               |  | FARMOUT AGREEMENT                     | 1522           |
| 12-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0-0   |                     |                       |              | CNX GAS COMPANY, LLC                                     |  | LIMITED PARTIAL ASSIGNMENT            | 1543           |
| 17.8 decided seven,   Concentration  |                     |                       |              | CNX GAS COMPANY, LLC                                     | - 1  | ASSIGNMENT                            | 1584           |
| 17-20-04-0-059-000,   Interfer to the Company   Control of Company   C   |                     |                       |              | NOBLE ENERGY, INC  |  | ASSIGNMENT                            | OBT            |
| 17.70 desires 1980.000.   Transcription   Tr   |                     |                       |              | INMES CLAW AND CICANNA LAW                               |  | INOT LESS THAN 1/8                    | 234            |
| 17.9644-0019-001   |                     | 0000-5500-660-06-51   |              | DESCRIVE GAS COMPANY                                     | HOPE NATURAL GAS COMPANY   | MERGER/NAME CHANGE                    | ZA TA          |
| 17.50-044-0001-0000   CONSCIUNTING DES ALTERNATION   CONSCIU   |                     | 17-20-0424-0033-0000, |              | RESERVE GAS COMPANY                                      | CONSOLIDATED GAS SLIPPLY CORPERATION   | MERGER/NAME CHANGE                    | ş              |
| 17.50-044-0001-0007    |                     | 17-20-0424-0033-0001, |              | CONFOUNTED CAS CUBIN CORRESTON                           | CONSOLIDATED GAS TRANSMISSION CORPERATION  | ASSIGNMENT                            | 1136           |
| 17.50-644-6015-000,   CHICAGO TOWN   |                     | 17-20-0424-0033-0002, |              | CONSCIDENTED GAS SOFTEI CONFERENCE                       | CNG GAS TRANSMISSION CORPERATION   | MERGER/NAME CHANGE                    | 5              |
| 17.5 40-04-6019-007  | FK052937            | 17.10.0424-0033-0003, |              | CONSCIENTED ON TOWNSHIPS CON LINES                       | DOMINION TRANSMISSION, INC   | MERGER/NAME CHANGE                    | 85             |
| 17-20-044-0419-0407   Cite des Colphany ILL   17-20-044-0419-0419-0419-0419-0419-0419-0419   |                     | 17-20-0424-0033-0004, |              | COMMISSION INC.  | CNX GAS COMPANY LLC  | FARMOUT AGREEMENT                     | 1522           |
| 17-20-044-04019-0401    Colored Statuth Annielle Brieffer   Park Lacial, Lie, Massawerer   17-20-044-04019-0401    Colored Statuth Annielle Brieffer   Park Lacial, Lie, Lacial Annielle Brieffer   Park Lacial, Lacial Annielle Brieffer   Park Lacial, Lie, Lacial Annielle Brieffer   Park Lacial Anni   |                     | 17-20-0424-0033-0005, |              | COMMISSION INC.  | NOBLE ENERGY, INC.   | LIMITED PARTIAL ASSIGNMENT OF FARMOUT | 1543           |
| 17-20-044-001-0000,   17-20-044-001-0000,   17-20-044-001-000,   17-20-044-001-0000,     |                     | 17-20-0424-0033-0000, |              | CAN GAS COMPANY III                                      | NOBIE ENEBGY INC   | ASSIGNMENT                            | 1584           |
| 17-20-0445-0000,   CONDIGUARD OSS TRATES   CONDIGUARD     |                     | 17-20-0424-0033-0007  |              | NOBI E ENEBEY INC  | HG FNFRGY II APPAI ACHIA LIC   | ASSIGNMENT                            | CEL            |
| 17-20-0444-0015-0000,   TOTAL CONTROLLED BATTON   TOTAL CONTROLLED B   |                     |                       |              | MODEL CIRCUITY AND   | DESCRIPE CAS COMPANY   | NOT LESS TUNN 1/B                     | E              |
| 17-30-044-0915-0000,   INSTRUCTORY AND CONSTRUCTION OF STREET CONS   |                     |                       |              | GUINN MINIER AND JANE MINIER                             | DESERVE CAS COMPANY  | SEE CONVEYANCE                        | -              |
| 17-20-04-40-05-000    PROFESSION   PROFESS   |                     |                       |              | EDWARD G. SMITH AND JESSIE B. SMITH                      | MESERVE GAS COMPANY  | SEE CONVETENCE                        | 002            |
| 17-20-044-001-000,   CONSCIDENTIAL OSC SUPPLIANT   CONSCIDENTIAL   |                     |                       | -            | RESERVE GAS COMPANY                                      | HOPE NATURAL GAS COMPANY   | FEE CONVETANCE                        | SUC S          |
| 17-20-044-0011-000    CONSCIDENTIO DES STREAMS   CONSCIDENT   CONSCI   |                     | 17-20-0443-0015-0000, |              | HOPE NATURAL GAS COMPANY                                 | CONSOLDATED GAS SUPPLY CORPERATION   | MERGER/NAME CHANGE                    | 200            |
| 17.75-0-0444-0019-0000    CONSCIDENTIST   CO   |                     | 17-20-0444-0018-0001, |              | CONSOLIDATED GAS SUPPLY CORPERATION                      | CONSOLDATED GAS I KANSMISSION CORPERATION  | ASSIGNMEN!                            | 1136           |
| 17-20-0444-0010-0000,   Colora Thresholdson, December 1000   Colorador 1   | EKN52752            | 17-20-0444-0018-0000, |              | CONSOLIDATED GAS TRANSMISSION CORPERATION                | CNG GAS TRANSMISSION CORPERATION   | MERGER/NAME CHANGE                    | 7              |
| 17-20-0444-001-0000  | 70.770W.            | 17-20-0444-0016-0000, |              | CNG GAS TRANSMISSION CORPERATION                         | DOMINION TRANSMISSION, INC   | MERGER/NAME CHANGE                    | 28             |
| 17-20-0444-0000-00000-00000-00000-00000-00000-0000   |                     | 17-20-0444-0017-0000, |              | DOMINION TRANSMISSION, INC                               | CNX GAS COMPANY, LLC   | FARMOUT AGREEMENT                     | 1522           |
| CUR GAS COMPANY, LLC   NOBLE FRENCY, INC   ASSIGNMENT   1544   |                     | 21-03-007B-0001-0000  |              | DOMINION TRANSMISSION, INC                               | CNX GAS COMPANY, LLC   | AMENDMENT TO FARMOUT AGREEMENT        | 1524           |
| The continuence   The contin   |                     |                       |              | CNX GAS COMPANY, LLC                                     | NOBLE ENERGY, INC  | LIMITED PARTIAL ASSIGNMENT OF FARMOUT | 1543           |
| 17-20-0444-001-000,   17-20-0444-002-000,   17-20-044-002-000,   17-20-044-002-000,   17-20-044-002-000,   17-20-044-002-000,   17   |                     |                       |              | CNX GAS COMPANY, LLC                                     | NOBLE ENERGY, INC  | ASSIGNMENT                            | 1584           |
| 17-20-6444-001-0000,   PRESENTE GAS COMPANY   NOT LESS THAN 1/8   174  |                     |                       |              | NOBLE ENERGY, INC  | HG ENERGY II APPALACHIA, LLC   | ASSIGNMENT                            | <u> </u>       |
| 17-20-0444-0002, 0000,   |                     |                       |              |  |  |                                       |                |
| 17-20-0444-001-0000    PERENGA GAS COMPANY   PROPE LANTILLES, GAS COMPANY   PROPE LANTILLES, GAS COMPANY   CONSCIDENTED GAS SUPPLY CORPERATION   CONSCIDENTED GAS SUPPLY CORPEGATION     |                     |                       |              | GUINN MINTER AND IANE MINTER                             | RESERVE GAS COMPANY  | NOT LESS THAN 1/8                     | 174            |
| 17-20-0444-0020-0000,   CONSCIUDATED GAS TRANSMISSION CORPERATION   CONSCIUDATED GAS TRANSMISSION CORPERATION   AESTICAMENT CLANKE   1916     17-20-0444-0021-0000,   CONSCIUDATED GAS TRANSMISSION CORPERATION   AESTICAMENT CLANKE   1916     17-20-0444-0022-0000,   CONSCIUDATED GAS TRANSMISSION CORPERATION   AESTICAMENT CLANKE   1917     17-20-0444-0022-0000,   CONSCIUDATED GAS TRANSMISSION CORPERATION   AESTICAMENT CLANKE   1917     17-20-0444-0022-0000,   CONSCIUDATED GAS TRANSMISSION CORPERATION   AESTICAMENT CLANKE   1917     17-20-0444-0022-0000,   CONSCIUDATED GAS TRANSMISSION CORPERATION   AESTICAMENT CLANKE   1918     17-20-0444-0022-0010   CONSCIUDATE GAS TRANSMISSION CORPERATION   AESTICAMENT CLANKE   1918     17-20-0444-0022-0010   CONSCIUDATE CLANKE   1918     17-20-0444-0022-0010      |                     |                       |              | RESERVE GAS COMPANY                                      | HOPE NATURAL GAS COMPANY   | FEE CONVEYANCE                        | 808            |
| 17-20-0444-002-0000,   CONSCIDENTED SEAS SUPPLY CORPERATION   CONSCIDENTED SEAS TRANSMISSION CORPERATION   MISREEP/NAME CHANGE   1316  |                     | 17-20-0444-0001-0000, |              | HOPE NATURAL GAS COMPANY                                 | CONSOLIDATED GAS SUPPLY CORPERATION  | MERGER/NAME CHANGE                    | 903            |
| 17-20-0444-0023-0000,   CLORSQUIDATED GAZE TRANSMISSION CORPERATION   CLORGEN/NAMIC CHANGE   S1     17-20-0444-0023-0000,   CLORSQUIDATED GAZE TRANSMISSION, INC   CLORGEN/NAMIC CHANGE CHANGE   CLORGEN/NAMIC CHANGE CHANGE CHANGE   CLORGEN/NAMIC CHANGE C   |                     | 17-20-0444-0002-0000, |              | CONSOLIDATED GAS SUPPLY CORPERATION                      |  | ASSIGNMENT                            | 1136           |
| 17-20-044-0023-0000, Civig Gas Transanission Corperation DOMINION Transanission, inC   | FK052896            | 21-03-007B-0001-0000, | 0101020000   | CONSOLIDATED GAS TRANSMISSION CORPERATION                |  | MERGER/NAME CHANGE                    | 51             |
| 17-20-044-0024-0000   DOMINION TRANSMISSION, INC   | FK103030            | 17-20-0444-0023-0000, |              | CNG GAS TRANSMISSION CORPERATION                         |  | MERGER/NAME CHANGE                    | 88             |
| 17-20-0444-0025-0000   CONTRACTOR   HOBEL ENERGY, INC   HOBEL ENERGY, INC   ASSIGNMENT   1543   1554   15   |                     | 17-20-0444-0024-0000, |              | CALINION TRANSMISSION INC                                |  | FARMOUT AGREEMENT                     | 1522           |
| CONSCIDENT   CONSCIENT   CONSCIDENT   CONSCIENT    |                     | 17-20-0444-0025-0000  |              | Continued in Section 1995                                |  | INVITED DADTIAL ASSIGNMENT OF EARMOUT | CASI           |
| CONSCIDENT   CONSCIENT   CONS   |                     |                       |              | CNX GAS COMPANY, LLC                                     | NOBLE ENERGY, INC.   | ACCOMMENTAL ASSOCIATION OF PARAMETER  | 2032           |
| A WORLESTHAN 1/8   |                     |                       |              | CNX GAS COMPANY, LLC                                     | INCORDE ENERGY, INC.   | ACCOMMENT                             | LS TRI         |
| 17-20-0444-9999-0002,   17-20-0444-9999-0002,   17-20-0444-9999-0002,   17-20-0444-9999-0002,   17-20-0444-9999-0002,   17-20-0444-9999-0002,   17-20-0444-9019-0011   17-20-0444-9019-0011   17-20-0444-9019-0011   17-20-0444-9019-0011   17-20-0444-9019-0011   17-20-0444-9019-0011   17-20-0444-9019-0011   17-20-0444-9019-0011   17-20-0444-9019-0011   17-20-0444-9019-0011   17-20-0444-9019-0011   17-20-0444-9019-0011   17-20-0444-9019-0011   17-20-044-9019-0011   17-20-044-9019-0011   17-20-044-9019-0011   17-2   |                     |                       |              | NOBLE ENERGY, INC  | TO CHEMO I DO CONTROL OF THE CONTROL | A PART COST TOWN TO                   |                |
| 17-20-0444-9999-0002,   CONSOLIDATE GAS COMPANY, LLC   |                     |                       |              | A W RHODES AND MARY RHODES                               | HOPE NATURAL GAS COMPANY   | NOT LESS THAN 1/8                     | 202            |
| 17-20-0444-9999-0002,   CONSQUIDATED 6AS TRANSMISSION CORFERATION   CONSQUIDATED 6AS TRANSMISSION CORFERATION   CONSQUIDATED 6AS TRANSMISSION CORFERATION   MERGER/NAME CHANGE   S18   |                     |                       | -            | HOPE NATURAL GAS COMPANY                                 | CONSOLIDATED GAS SUPPLY CORPERATION  | MERGER/NAME CHANGE                    | 505            |
| 17-20-0444-9019-0001,   CONSOLIDATED GAS TRANSMISSION OF PERATION   CONSOLIDATED GAS TRANSMISSION OF PERATION   CONSOLIDATED GAS TRANSMISSION OF PERATION   CONSOLIDATED GAS TRANSMISSION INC   CING GAS COMPANY, LLC   FARMOUT AGREEMENT   1522   CONSOLIDATE CIANGE CIAN   |                     |                       |              | CONSOLIDATED GAS SUPPLY CORPERATION                      | 1  | ASSIGNMENT                            | 1136           |
| 17-20-044-0019-0011 CID0459000 CING GAS TRANSMISSION CORPERATION DOMINIONT CARGE CIANGE CIANG | •                   | 13 30 0000 0000 00 Et |              | CONSOLIDATED GAS TRANSMISSION CORPERATION                | -  | MERGER/NAME CHANGE                    | 21             |
| DOMINION TRANSAUSSION, INC.  CINK GAS COMPANY, ILC.  NOBLE ENERGY, INC.  NOBLE ENERGY, | FK013930            | 17-20-0444-9999-0002, |              | CNG GAS TRANSMISSION CORPERATION                         | 1  | MERGER/NAME CHANGE                    | 28             |
| CONTRACT OF CONTRACT OF PARTING TO THE PARTING TO THE TOWN THE CONTRACT OF TARMOUT 1543  CONTRACT OF CONTRACT OF TARMOUT 1543  CONTRACT OF CONTRACT OF TARMOUT 1544  CONTRACT OF CONTRACT OF CONTRACT OF TARMOUT 1544  CONTRACT OF CONTRACT OF CONTRACT OF TARMOUT 1544  CONTRACT OF CONTRACT  | Fic                 | TION-ETON-HAND-07-/T  |              | DOMINION TRANSMISSION, INC                               |  | FARMOUT AGREEMENT                     | 1522           |
| CONTRIBUTION NOBLE ENERGY, INC. HIGENERGY I APPALACHIA, LLC. ASSIGNMENT TBD.  P. P   | o<br>O              | ā                     |              | CNX GAS COMPANY, LLC                                     |  | UMITED PARTIAL ASSIGNMENT OF FARMOUT  | 1543           |
| NOBLE ENERGY, INC   HIG ENERGY II APPALACHIA, LLC   ASSIGNMENT TED   S S O O O O O O O O O O O O O O O O O   | ۰<br>ک              | 25                    |              | CNX GAS COMPANY, LLC                                     |  | ASSIGNMENT                            | 1584           |
| VED Gas  | (<br>(              | - F                   |              | NOBLE ENERGY, INC  |  | ASSIGNMENT                            | DBT TBD        |
| ED Gas and Gas 1 2017 spartment of   | 0                   | EN.                   |              | NOBLE ENERGY, INC  |  | ASSIGNMENT                            | ng             |
| ond Gas 2017  antinent of the content of the conten | 1<br>ep             | E                     |              |  |  |                                       |                |
| Gas<br>017<br>chentac  | art<br>ota          | nd<br>O               |              |  |  |                                       |                |
| as<br>17<br>entotec  | 0,                  | G                     |              |  |  |                                       |                |
| t of<br>otec   | er<br>Pr            | as                    |              |  |  |                                       |                |
| st.  | t C                 |                       |              |  |  |                                       |                |
|  | t<br>S              |                       |              |  |  |                                       |                |



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

September 21, 2017

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

RE: Drilling Under Roads – KST5 DHS

Union District, Harrison County

West Virginia

Dear Ms. Adkins:

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

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

Very truly yours,

Diane White

Diane C. White

Enclosures

Office of Oil and Gas

OCT 01 2017

W Department of Environmental Protection

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

| Date of Notic  | ce Certification: 09/21/2017   | API No.  | 47-033   | 05817 DD  |
|--|--|--|--|---|
|  |  | Operator   | 's Well No. KST  | DHS   |
|  |  | Well Pad   | Name: KST5   |   |
| Notice has l   |  |  |  |   |
|  |  | 22-6A, the Operator has provided the r   | equired parties v  | vith the Notice Forms listed  |
|  | tract of land as follows:  | F .:   | 5.5500.0   |   |
| State:   | West Virginia  | UTM NAD 83 Easting:  | 545520.0<br>4335844.3  |   |
| County: District:  | Harrison   | Public Road Access:  | CR 19/18   |   |
| Quadrangle:  | West Milford WV 7.5'   | Generally used farm name:  |  | nald  |
| Watershed:   | Middle West Fork Creek   | Ocherany used farm name.   | James Ivan Nicol   | Silaid  |
| watershed.   | milado Woot Fork Orock   |  |  |   |
| prescribed by<br>it has provide<br>information r<br>of giving the<br>requirements<br>Virginia Code | the secretary, shall be verified and si<br>ed the owners of the surface describ<br>equired by subsections (b) and (c), se<br>surface owner notice of entry to su<br>of subsection (b), section sixteen o | every permit application filed under thall contain the following information: (bed in subdivisions (1), (2) and (4), suction sixteen of this article; (ii) that the rvey pursuant to subsection (a), section f this article were waived in writing bender proof of and certify to the secretart. | (14) A certification (b), section (b), section (b), section (c), section (d), secti | on from the operator that (i)<br>etion ten of this article, the<br>deemed satisfied as a result<br>cle six-a; or (iii) the notice<br>wner; and Pursuant to West |
|  | West Virginia Code § 22-6A, the Operator has properly served the require   | erator has attached proof to this Notice d parties with the following:   | Certification  |   |
|  | ECK ALL THAT APPLY   |  |  | OOG OFFICE USE<br>ONLY  |
| ☐ 1. NO  | TICE OF SEISMIC ACTIVITY or  | ■ NOTICE NOT REQUIRED BEC. SEISMIC ACTIVITY WAS CONDU  |  | ☐ RECEIVED/ NOT REQUIRED  |
| ☐ 2. NO  | TICE OF ENTRY FOR PLAT SURV  | YEY or  NO PLAT SURVEY WAS   | CONDUCTED  | □ RECEIVED  |
| ☐ 3. NO  | TICE OF INTENT TO DRILL or   | NOTICE NOT REQUIRED BECONDTICE OF ENTRY FOR PLAT SURVING WAS CONDUCTED OF  |  | ☐ RECEIVED/<br>NOT REQUIRED   |
|  |  | WRITTEN WAIVER BY SURF<br>(PLEASE ATTACH)  |  |   |
| ■ 4. NO  | TICE OF PLANNED OPERATION  | Office of  | EIVED Gas  | ☐ RECEIVED  |
| ■ 5. PUI   | BLIC NOTICE  | 720  | 0 1 2017   | ☐ RECEIVED  |
| ■ 6. NO  | TICE OF APPLICATION  | W [<br>Environ   | Department of mental Protection  | ☐ RECEIVED  |

#### **Required Attachments:**

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

ACOID ND

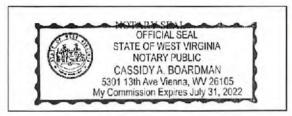
#### Certification of Notice is hereby given:

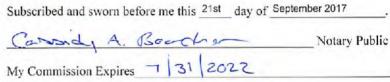
 Well Operator:
 HG Energy II Appalachia, LLC
 Address:
 5260 Dupont Road

 By:
 Diane White
 Parkersburg, WV 26101

 Its:
 Agent
 Facsimile:
 304-863-3172

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





Oil and Gas Privacy Notice:

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

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OCT 0 1 2017

WV Department of Environmental Protection WW-6A (5-12) API NO. 47- 033- 05817 DD
OPERATOR WELL NO. KST5 DHS
Well Pad Name: KST5

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

|  | ice Time Requirement: notice shall be provided no later<br>e of Notice: 09/19/2017 Date Permit Application Filed:   |  |   |
|--|---|--|---|
| Not  | ice of:   |  |   |
| •  |   | APPROVAL FOR THE<br>DF AN IMPOUNDMENT OR PIT   |   |
| Deli   | very method pursuant to West Virginia Code § 22-6A  | s-10(b)  |   |
|  |   | THOD OF DELIVERY THAT REQUIRES A CEIPT OR SIGNATURE CONFIRMATION   |   |
| or by eros own tract road several loca oil a enla Any with dom (c)(t) the I main contract. | a certificate of approval for the construction of an impount y registered mail or by any method of delivery that required ion and sediment control plan required by section seven ders of record of the surface of the tract on which the well to reacts overlying the oil and gas leasehold being developed to the sarticle; (3) The coal owner, operator or lessee, in ted [sic] is known to be underlain by one or more coal search gas leasehold being developed by the proposed well vergement, alteration, repair, removal or abandonment of an surface owner or water purveyor who is known to the application one thousand five hundred feet of the center of the we destic animals; and (6) The operator of any natural gas stotal of the surface owner than three tenants in common or other co-owner ands, the applicant may serve the documents required up national pursuant to section eight, article one, chapter elevtrary, notice to a lien holder is not notice to a landowner, ince is hereby provided to: | res a receipt or signature confirmation, copies of the apport this article, and the well plat to each of the following is or is proposed to be located; (2) The owners of record oped by the proposed well work, if the surface tract is to disediment control plan submitted pursuant to subsection the event the tract of land on which the well proposed ams; (4) The owners of record of the surface tract or travork, if the surface tract is to be used for the placement my impoundment or pit as described in section nine of the policant to have a water well, spring or water supply so will pad which is used to provide water for consumption orage field within which the proposed well work activitiers of interests described in subsection (b) of this section the person described in the records of the sheriff record of this code. (2) Notwithstanding any provision of | plication, the g persons: (1) The rd of the surface to be used for on (c), section I to be drilled is acts overlying the construction, his article; (5) urce located by humans or y is to take place. on hold interests in quired to be |
| Nan  | SURFACE OWNER(s) ne:  | Name: NA Address:  |   |
| Nan<br>Add   | Lost Creek, WV 26385 ne:  | COAL OPERATOR  Name: NA Address:   | RECEIVED<br>Office of Oil and Gas   |
| Nan  | SURFACE OWNER(s) (Road and/or Other Disturbance<br>ne:Same as Above<br>lress:   | □ WATER PURVEYOR(s)  | OCT 0 1 2017  |
| Nan  | ne:   | Name: NA<br>Address:   | WV Department of<br>Environmental Protection  |
| Nan  | SURFACE OWNER(s) (Impoundments/Pits) ne: dress:   | OPERATOR OF ANY NATURAL GAS STOFFIELD  Name: Dominion Transmission Inc Ronald Walden  Address: 445 West Main Street  Clarksburg, WV 26301  | ORAGE   |
|  |   | *Please attach additional forms if necessary   |   |

RECEIVED Office of Oil and Gas

WW-6A (5-12)

OCT 01 2017 APINO. 47- 033 05817 OPERATOR WELL NO. KSTS DHS

WV Department of Well Pad Name: KSTS Environmental Protection

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 crosion and sediment control plan required by section seven of this article; and (3) the well plat.

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

Additional information related to horizontal drilling may be obtained from the Secretary, at the WV Department of Environmental Protection headquarters, located at 601 57th Street, SE, Charleston, WV 25304 (304-926-0450) or by visiting www.dep.wv.gov/oiland-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 WW-6A (5-12)

factors, if necessary.

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

#### Written Comment:

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

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

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

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

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

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

#### **Comment Requirements**

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

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

#### Permit Denial or Condition

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

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

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WV Department of Environmental Protection

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.

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

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

Notice is hereby given by:

Well Operator: HG Energy II Appalachia, LLC

Telephone: 304-420-1119

Email: dwhite@hgenergyllc.com

Address: 5260 Dupont Road

Parkersburg, WV 26101

Facsimile: 304-863-9127

#### Oil and Gas Privacy Notice:

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OFFICIAL SEAL
NOTARY PUBLIC. STATE OF WEST VIRGINIA
MARK J SCHALL
H G Energy L L C
PO Box 5519, Vienna, WY 28105
My Commission Expires November 2, 2021

Subscribed and sworn before me this

M. D. L.C.

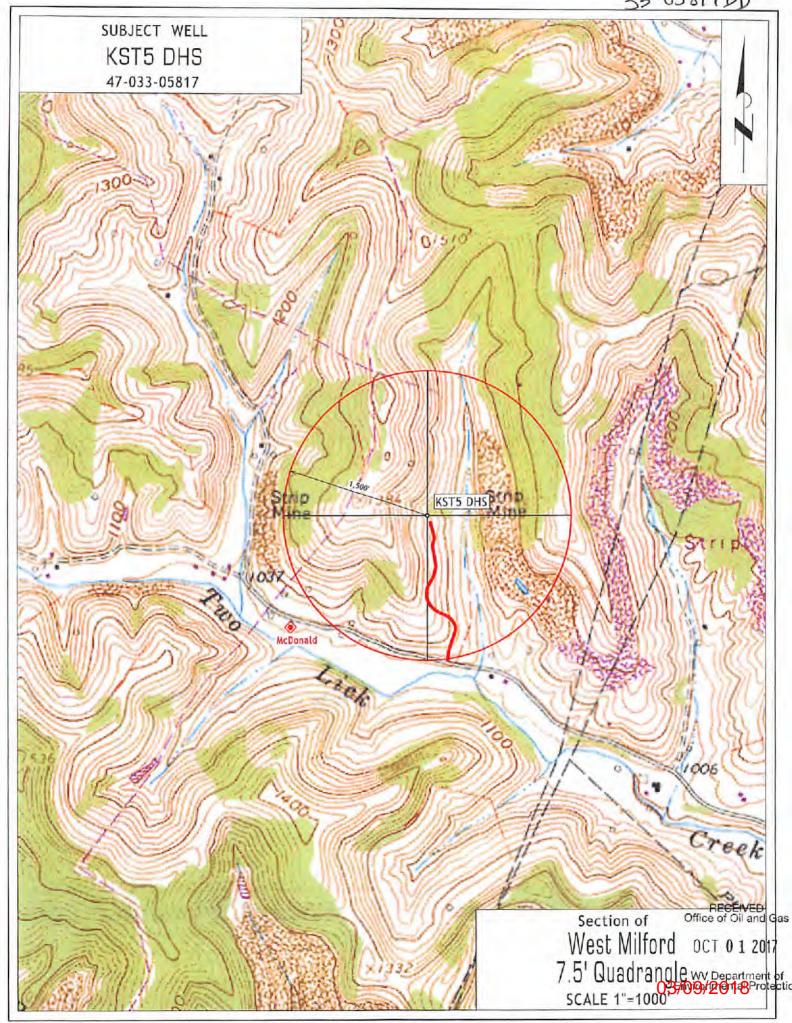
My Commission Expires

Notary Public

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OCT 0 1 2017

WV Department of Environmental Protection



## **HG Energy, LLC**

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

- See Attached Waiver-

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OCT 0 1 2017

WV Department of Environmental Protection

03/09/2018

WW-6A4W (1/12)

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

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

## WAIVER

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

#### Surface Owner Waiver:

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

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

#### Oil and Gas Privacy Notice:

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Office of Oil and Gas

OCT 0 1 2017

WV Department of Environmental Protection

WW-6A5 (1/12)

Operator Well No. KST5 DHS

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

| Date of Not  | e Requirement: notice<br>tice: 08/30/2017   |   | o later than the filing pplication Filed: 09/1  |   | application.  |
|--|---|---|---|---|---|
| Delivery m   | ethod pursuant to We  | est Virginia Code §   | 22-6A-16(c)   |   |   |
| ■ CERT   | ΓΙFΙΕD MAIL   |   | HAND  |   |   |
| RETU   | JRN RECEIPT REQUI   | ESTED   | DELIVERY  |   |   |
| return receip<br>the planned<br>required to be<br>drilling of a<br>damages to<br>(d) The noti<br>of notice.  | pt requested or hand de<br>l operation. The notice<br>be provided by subsection<br>a horizontal well; and of<br>the surface affected by<br>ices required by this sec-<br>ercby provided to the sec-   | elivery, give the surface required by this so<br>ion (b), section ten of<br>(3) A proposed surfacilland gas operation<br>otion shall be given the<br>SURFACE OWNE | ace owner whose land<br>absection shall include<br>if this article to a surfa-<br>ace use and compens<br>as to the extent the da<br>to the surface owner a                                      | will be used for<br>de: (1) A copy<br>ace owner whose<br>ation agreement<br>mages are com | cation, an operator shall, by certified mail or the drilling of a horizontal well notice of of this code section; (2) The information se land will be used in conjunction with the at containing an offer of compensation for pensable under article six-b of this chapter. sted in the records of the sheriff at the time                        |
| April 19 Carlot Carlot Committee   | ess listed in the records   | of the sheriff at the   |   |   |   |
|  | ames McDonald<br>416 Good Hope Road   |   | Name:   |   |   |
| A STATE OF THE PARTY OF THE PAR | ost Creek, WV 26385   |   | Address   | •   |   |
|  |   | 22-6A-16(c), notice i   | s hereby given that th  | e undersigned   | well operator has developed a planned   |
| Pursuant to operation of State:  |   |   |   | well on the tra   | well operator has developed a planned act of land as follows:  545520.0  4335844.3  |
| operation of<br>State:<br>County:<br>District:   | West Virginia Code § 2 In the surface owner's la West Virginia Harrison Union   |   | of drilling a horizonta  UTM NAD 8  Public Road   | well on the tra Easting: Northing: Access:  | ct of land as follows:<br>545520.0  |
| Pursuant to operation of State: County:  | West Virginia Code § 2 In the surface owner's la West Virginia Harrison Union   |   | of drilling a horizonta  UTM NAD 8  | well on the tra Easting: Northing: Access:  | act of land as follows:<br>545520.0<br>4335844.3  |
| Pursuant to<br>operation of<br>State:<br>County:<br>District:<br>Quadrangle:<br>Watershed:   | West Virginia Code § 2 In the surface owner's la West Virginia Harrison Union : West Milford, WV 7.5' Middle West Fork Creek  |   | of drilling a horizonta  UTM NAD 8  Public Road   | well on the tra Easting: Northing: Access:  | act of land as follows:<br>545520.0<br>4335844.3<br>Two Lick Run (CR19/18)  |
| Pursuant to<br>operation of<br>State:<br>County:<br>District:<br>Quadrangle:<br>Watershed:<br>This Notice<br>Pursuant to<br>to be provide<br>horizontal wasurface affe<br>information  | West Virginia Code § 2 In the surface owner's lawest Virginia Harrison Union : West Milford, WV 7.5' Middle West Fork Creek  Shall Include: West Virginia Code § ded by W. Va. Code well; and (3) A propose ceted by oil and gas op related to horizontal ces, located at 601 57th  | 22-6A-16(c), this no<br>§ 22-6A-10(b) to a set of surface use and content of the extendrilling may be obta  | of drilling a horizonta  UTM NAD 8  Public Road A  Generally use  tice shall include: (1) surface owner whose impensation agreement the damages are coined from the Secret                      | A copy of this land will be undary, at the WV   | tet of land as follows:<br>545520.0<br>4335844.3<br>Two Lick Run (CR19/18)  |
| Pursuant to operation of State: County: District: Quadrangle: Watershed: This Notice Pursuant to to be provide horizontal wasurface affe information headquarter: gas/pages/do   | West Virginia Code § 2 In the surface owner's la West Virginia Harrison Union : West Milford, WV 7.5' Middle West Fork Creek  Shall Include: West Virginia Code § ded by W. Va. Code well; and (3) A propose sected by oil and gas op related to horizontal of s, located at 601 57th efault.aspx.                                      | 22-6A-16(c), this no § 22-6A-10(b) to a set surface use and conferrations to the extendrilling may be obtan Street, SE, Charl                                     | of drilling a horizonta  UTM NAD 8  Public Road A  Generally use  tice shall include: (1) surface owner whose impensation agreement the damages are coined from the Secret                      | A copy of this land will be undary, at the WV 304-926-0450)                               | act of land as follows:  545520.0  4335844.3  Two Lick Run (CR19/18)  R. C. McDonald  code section; (2) The information required used in conjunction with the drilling of an offer of compensation for damages to the der article six-b of this chapter. Additional Department of Environmental Protection  |
| Pursuant to operation of State: County: District: Quadrangle: Watershed: This Notice Pursuant to to be provide horizontal wasurface affe information headquarter: gas/pages/de Well Operation  | West Virginia Code § 2 In the surface owner's la West Virginia Harrison Union : West Milford, WV 7.5' Middle West Fork Creek  Shall Include: West Virginia Code § ded by W. Va. Code well; and (3) A propose sected by oil and gas op related to horizontal of s, located at 601 57th efault.aspx.                                      | 22-6A-16(c), this no § 22-6A-10(b) to a set surface use and conferrations to the extendrilling may be obtan Street, SE, Charl                                     | of drilling a horizonta  UTM NAD 8  Public Road A  Generally use  tice shall include: (1) surface owner whose mpensation agreement the damages are co- ined from the Secret eston, WV 25304 (1) | A copy of this land will be undary, at the WV 304-926-0450)                               | act of land as follows:  545520.0  4335844.3  Two Lick Run (CR19/18)  R. C. McDonald  code section; (2) The information required used in conjunction with the drilling of an offer of compensation for damages to the ler article six-b of this chapter. Additional Department of Environmental Protection or by visiting www.dep.wv.gov/oil-and- |
| Pursuant to operation of State: County: District: Quadrangle: Watershed: This Notice Pursuant to to be provide horizontal wasurface affeinformation headquarter: gas/pages/de  | West Virginia Code § 2 In the surface owner's la  West Virginia  Harrison  Union  : West Milford, WV 7.5'  Middle West Fork Creek  2 Shall Include: West Virginia Code § ded by W. Va. Code well; and (3) A propose sected by oil and gas op related to horizontal of s, located at 601 57th efault.aspx.  tor: HG Energy II Appalachia | 22-6A-16(c), this no § 22-6A-10(b) to a set of surface use and concertations to the extendrilling may be obtated. Street, SE, Charles, LLC                        | of drilling a horizonta  UTM NAD 8  Public Road A  Generally use  tice shall include: (1) surface owner whose mpensation agreement the damages are co- ined from the Secret eston, WV 25304 (1) | A copy of this land will be undary, at the WV 304-926-0450)                               | act of land as follows:  545520.0  4335844.3  Two Lick Run (CR19/18)  R. C. McDonald  code section; (2) The information required used in conjunction with the drilling of an offer of compensation for damages to the ler article six-b of this chapter. Additional Department of Environmental Protection or by visiting www.dep.wv.gov/oil-and- |

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OCT 0 1 2017 WV Department of WV Department of Environmental Protection 03/09/2018



## WEST VIRGINIA DEPARTMENT OF TRANSPORTATION

Division of Highways

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

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

September 20, 2017

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

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

Dear Mr. Martin,

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

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

Very Truly Yours,

Gary K. Clayton, P.E.

Jany K. Clayton

Regional Maintenance Engineer Central Office O&G Coordinator

Cc: Matt McGuire

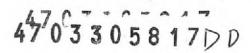
HG Energy, LLC

CH, OM, D-4

File

Office of Oil and Gas
OCT 0 1 2017

WV Department of Environmental Protection



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

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

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





LOCATION MAP

#### T INFORMATION

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AS ROYALTY OWNER
B. H. MCDOMALD AM MCDOMALD & LYDIA MCDOMALD
MAN/FARER ZO AZ-S-6
AL PROPERTY AREA (TO 00 %). ACRES

AT TIME TO CATION

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TO 36/2 & COUNTY ROUTE 19/16

CE PERMIT

## 5 CONFARY WILL GETAIN AN ENCROACHMENT PEPHET (FORM PPH-GO) & WEST VIRGINIA DEPARTMENT OF TRANSPORTS FOR DIVIDIOS OF IS, PRIOR TO COMMENCHANT OF CONSTRUCTION ACTIVITIES.

HILTY OF WEST VINGING MAD NOTIFIED FOR THE LOCATING OF E PRIOR TO THIS PROJECT DESIGN (TICKET NO. IGOASOZER?) IN IN PASS UTILITY WILL BE CONTACTED PRIOR TO THE START OF THE

LAIN NOTE PROTED LIMITS OF DISTURBANCE FOR THIS PROJECT ARE NOT LOCATED DOG ZONE, PER THE FLOOD INSURANCE RATE HAY (FIRST) INCOMES COZADD.

LAWING WAS CREATED ON 22x34 PAPER, IXIT DRAWINGS IN HALF SCALE, REFER TO SCALE BAR FOR PROPER SCALING

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LORIS FRUCTION DE TAILS GENERAL NOTES SEVERAL NOTES

VEM LE SOUNDARY OVERVIEW

EXISTING CONDITIONS

OVERAL SITE FLAN

OVERAL SITE PLAN WOORDID

DETAILED SITE PLAN (OF L)



API#3105614 API#3105616 API#3105616

### HG ENERGY II APPALACHIA, LLC

5260 DuPont Road Parkersburg, WV 26101

## KST5HS WELL SITE

#### PAD CENTER LOCATION

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

#### ENTRANCE LOCATION

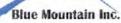
NAD 83 - LAT: N 39° 09' 59.05"; LONG: W 80° 28' 20.09" NAD 27 - LAT: N 39° 09' 58.72"; LONG: W 80° 28' 21.57" UTM NAD 83 ZONE 17 - N: 4335375.359; E: 545591.936

#### UNION DISTRICT.

#### HARRISON COUNTY, WEST VIRGINIA

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

SDW 9/20/2017



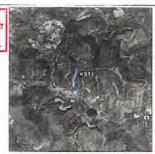
Engineers and Land Surveyors

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





WAL 12/12/18/17



LOCATION MAP

#### ENVIRONMENTAL NOTES

ENVIRONMENTAL NOTES

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#### RESTRICTIONS

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  2 FARE AND 60 GROUNDWATER INTERE OF PUBLIC MATER SUPPLY FACULATED WHITE HORSE WITHIN 500° OF THE FAB AND LCD.

  3 FARE AND NO ENGINE MATER WILLIAM DEVELOPED PRINGS WITHIN 25 DEPARTMENT OF THE FAB.

  CHAPTER OF THE FAB.

  3 THERE ARE NO SOFTCUTURAL BUILDINGS LARREY THAN 2.500° SAGREY THAN 2.5

