

2400 Ansys Drive, Suite 200  
Canonsburg, PA 15317  
www.eqt.com

August 16, 2018

*Via FedEx Delivery*

Pennsylvania Department of Environmental Protection  
Bureau of Oil & Gas Management  
Attn: Mr John D Rushin  
400 Waterfront Drive  
Pittsburgh, PA 15222-4745

RE: Alternate Casing and Cementing Plan Requests  
Habanero Well Site  
North Strabane Township, Washington County, PA

Mr. Rushin,

Please see the enclosed 8000-PM-OOGM0024 Form for the "Proposed Alternate Method or Material for Casing, Plugging, Venting or Equipping a Well" and supporting documentation for the following well(s):

- Habanero WAE1H14 – 37-125-28582-00-00
- Habanero WAE1H15 – 37-125-28584-00-00
- Habanero WAE1H16 – 37-125-28583-00-00
- Habanero WAE1H17 – 37-125-28585-00-00
- Habanero WAE1H22 – 37-125-28586-00-00
- Habanero WAE1H23 – 37-125-28587-00-00
- Habanero WAE1H24 – 37-125-28588-00-00

EQT Production trusts that if any portion of the submitted documentation is found to be inadequate for processing this application, notification will be made to our land department at your earliest convenience. It is EQT Production's intent to cooperate fully to provide any additional requested documentation and clarification in a timely manner such that permitting proceeds in a predictable and logical manner.

Best Regards,

A handwritten signature in black ink, appearing to read "Erin Spine".

Erin Spine  
Regional Land Supervisor  
[espine@eqt.com](mailto:espine@eqt.com)  
724-809-5469

**RECEIVED**

AUG 17 2018

DEP Southwest Region  
Oil & Gas



MA: 1233332

|                                   |
|-----------------------------------|
| DEP USE ONLY                      |
| Application Tracking #<br>1241824 |

AUG 17 2018

DEP SWDO  
OIL & GAS

**Proposed Alternate Method or Material for  
Casing, Plugging, Venting or Equipping a Well**

Site: 787453  
Client: 268470  
APS: 970712

|  |                     |                      |  |                    |
|--|---------------------|----------------------|--|--------------------|
| Well Operator<br>Rice Drilling B LLC   |                     | DEP ID#<br>268470    | Well Permit or Registration Number<br>37-125-28586-00-00 |                    |
| Address<br>2400 Ansys Drive, Suite 200 |                     |                      | Well Farm Name<br>Habanero                               |                    |
| City<br>Canonsburg                     | State<br>PA         | Zip Code<br>15317    | Well #<br>WAE1H22  | Serial #<br>597010 |
| Phone<br>724-809-5469                  | Fax<br>724-745-2418 | County<br>Washington | Municipality<br>North Strabane Township                  |                    |

PF: 827253  
SF: 1260828

A proposed alternate method is subject to provisions in §3221 of the 2012 Oil and Gas Act, 58 Pa. C.S. §3221 Section 13 of the Coal and Gas Resource Coordination Act, 58 P.S. §513 and 25 PA Code §§78.75-78.75a (relating to Alternate Methods.) **Attach proof of notification of coal operator(s).**

Describe in reasonable detail using a written description and / or diagram:

1. the proposed alternate method or materials, and
2. the manner in which the alternative will satisfy the goals of the laws and regulations.

- EQT Production will drill no more than 100' below the base of the mine void to provide adequate rat hole for the coal protective casing to be set 30' – 50' below the base of the mine void. The coal protective casing will be cemented to surface using the displacement method. If necessary, grout tubing will be used to cement to surface from the top of the cement basket above the mine void (in accordance with 25 PA Code Section 78.83 (h)).
- Coal related parties have been notified as required by regulation. Proof of notification of the coal operator has been included with this submittal.
- Details are attached on subsequent documents.

|   |      |  |                   |
|---|------|--|-------------------|
| <b>Optional: Approval by Coal Owner or Operator</b> |      | <b>Signature of Applicant / Well Operator</b>                                  |                   |
| Signature   | Date | Signature<br>  | Date<br>8/15/2018 |
| Print or Type Signer's Name and Title               |      | Print or Type Signer's Name and Title<br>Erin Spine - Regional Land Supervisor |                   |

If optional approval is signed by coal owner or operator, the 15-day objection period may be waived.

|                               |  |                |
|-------------------------------|--|----------------|
| <b>DEP USE ONLY</b>           |  |                |
| Approved by (DEP Manager)<br> | Conditions<br><input type="checkbox"/> YES, See Attached<br><input checked="" type="checkbox"/> NO | Date<br>9/4/18 |

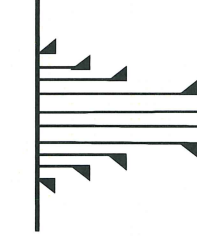
(OGI)- John Rushin

Well 597010 (WAE1H22)  
EQT Production  
Washington East Quad  
Washington County

Pad name:  
Azimuth  
Vertical Section  
Pennsylvania

Habanoero  
155  
9464.9

Formation Tops  
Conductor  
Base Fresh Water  
Fresh Water String  
Pittsburgh Coal  
Pittsburgh Coal String  
Big Lime  
Big Injun  
Intermediate Casing



2375 3326  
2428 2480  
2480 2540  
2595 2646  
2677 2743  
2756 2838  
2932 2960  
3326 5154  
5438 5731  
5731 6703  
6703 6865  
6865 6968  
6968 7010  
7027 7066  
7066 7321  
7252 7352  
17,232' MD  
7352

| Casing and Cementing Type   | Conductor    | Fresh Water                   | Coal                          | Casing Annulus Packer | Intermediate   | Production  |
|-----------------------------|--------------|-------------------------------|-------------------------------|-----------------------|--|---|
| Hole Size (in.)             | 30           | 24                            | 17 1/2                        | 12 3/8                | 12 3/8   | 8 1/2   |
| Casing Size, OD (in.)       | 26           | 18 5/8                        | 13 3/8                        | 9 5/8                 | 9 5/8  | 5 1/2   |
| Casing Wall Thickness (in.) | 0.312        | 0.435                         | 0.380                         | 0.395                 | 0.395  | 0.361   |
| Depth, MD                   | 40'          | 510'                          | 639'                          | NA                    | 2,010'   | 17,232'   |
| Weight (lbs/ft)             | 85.6         | 87.5                          | 54.5                          |                       | 40   | 20  |
| Grade                       | A-500        | J-55                          | J-55                          |                       | A-500  | P-110   |
| New or Used                 | New          | New                           | New                           |                       | New  | New   |
| Burst (psi)                 | 884          | 2,250                         | 2,700                         |                       | 3,950  | 12,640  |
| Cement Class                | A            | A / Type 1                    | A / Type 1                    |                       | A / H / Type 1   | A / G / H / POZ   |
| Cement Yield                | 1.18         | 1.19                          | 1.19                          |                       | 1.19   | 1.12 / 2.09   |
| Top of Cement (Planned) TVD | Surface      | Surface                       | Surface                       |                       | Surface  | 1500' above top of Genesee  |
| Method                      | Displacement | Displacement                  | Balanced / Grout              |                       | Displacement   | Displacement  |
| Est. Volume (cu ft)         | 49           | 828                           | 522                           |                       | 792  | 2,931   |
| Possible Additives          | N/A          | Calcium Chloride<br>Flake/LCM | Calcium Chloride<br>Flake/LCM |                       | Calcium Chloride<br>Flake/LCM, Fluid Loss,<br>Defoamer, Dispersant,<br>POZ, Bonding Agent,<br>Extender, Retarder | Calcium Carbonate, Fluid Loss,<br>Extender, Dispersant,<br>Viscosifier, Defoamer, POZ,<br>Bonding Agent, Retarder, Anti-<br>Settling/Suspension Agent |

\* FW depth determined by analyzing offset O&G wells within 5,000' of pad and water wells/surface water within 2,500' of pad.  
\* FW and Coal wellbores will be conditioned with air and/or foam at TD of hole section.  
\* FW and Coal strings will have centralizers installed on the shoe joint and in intervals no greater than 150' to surface.  
\* Coal and Intermediate wellbores will be conditioned with air/foam/mud at TD of hole section.  
\* Coal and Intermediate strings will have centralizers installed on the shoe joint and in intervals no greater than 150' to surface.  
\* Cement covering coal zones has Medium Sulfate Resistance characteristics (C3A <8% per mill reports).

KOP @ 4,896'

\* 8.5" Wellbore will be conditioned with mud at TD of hole section.  
\* Centralizers on 5.5" will be placed on shoe joint and every joint from TD to 500' above KOP.



Proposed Well Work:  
\*Drill and complete a new horizontal well in the Marcellus formation.

\*Drill the vertical to an approximate depth of 4896'.

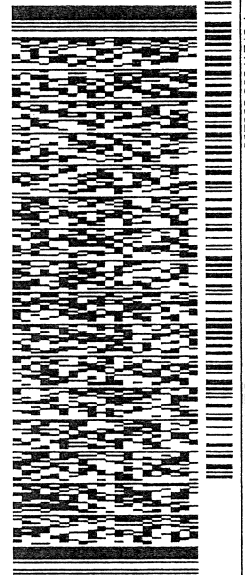

\*Kick off and drill curve. Drill lateral in the Marcellus. Cement casing.

Max Anticipated Reservoir Pressure = 2988 psi



TRK# 7729 7859 2472  
 0201  
**65 HLG A**  
 OH-US  
**43950**  
 PIT

THU - 16 AUG 10:30A  
 PRIORITY OVERNIGHT

J182018072201uv

SAINT CLAIRSVILLE OH 43950  
 REF: (724) 271-7314  
 NV  
 PO: 217006 863200 DEPT

46226 NATIONAL ROAD

TO EIGHTY FOUR MINING CO.

ORIGIN: PITA (724) 271-7516  
 OLIVIA PISHONERI  
 EOT  
 2400 ANSYS DRIVE  
 SUITE 200  
 CANONSBURG, PA 15317  
 UNITED STATES US

SHIP DATE: 15AUG18  
 ACTWGT: 0.50 LB  
 CAD: 107391712INNET4040  
 BILL SENDER

552J1G309/DCA5

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August 16, 2018

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| <b>Signed for by:</b>    | H.SANTINI                | <b>Delivery location:</b> | SAINT CLAIRSVILLE, OH   |
| <b>Service type:</b>     | FedEx Priority Overnight | <b>Delivery date:</b>     | Aug 16, 2018 09:34      |
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**Shipper:**  
Canonsburg, PA US

**Purchase order number:** 217006.863200

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