PERMIT MODIFICATION APPROVAL

March 25, 2014

EQT PRODUCTION COMPANY
POST OFFICE BOX 280
BRIDGEPORT, WV 26330

Re: Permit Modification Approval for API Number 1706326, Well #: WV 513138
Modified Casing

Oil and Gas Operator:
The Office of Oil and Gas has reviewed the attached permit modification for the above referenced permit. The attached modification has been approved and well work may begin. Please be reminded that the oil and gas inspector is to be notified twenty-four (24) hours before permitted well work is commenced.

Please call James Martin at 304-926-0499, extension 1654 if you have any questions.

Sincerely,

Gene Smith
Regulatory/Compliance Manager
Office of Oil and Gas
December 17, 2013

Mr. Gene Smith
West Virginia Department of Environmental Protection
Office of Oil and Gas
601 57th Street SE
Charleston, WV 25304

Re: Modification of (OXF156) 47-017-06326

Dear Mr. Smith,

Attached is a modification to the casing program for the above well. A new WW-6B & schematics are enclosed for your review. Due to problems encountered drilling the WEU8 wells, we have decided to set the intermediate casing deeper.

If you have any questions, please do not hesitate to contact me at (304) 848-0076.

Sincerely,

[Signature]

Vicki Roark
Permitting Supervisor-WV

Enc.
cc: Douglas Newlon
4060 Dutchman Road
Macfarlan, WV 26148
STATE OF WEST VIRGINIA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS  
W.V.A. CODE 522-6A - WELL WORK PERMIT APPLICATION

1) Well Operator: EQT Production Company

<table>
<thead>
<tr>
<th>Operator ID</th>
<th>County</th>
<th>District</th>
<th>Quadrangle</th>
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<tbody>
<tr>
<td>017</td>
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<td>8</td>
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</tbody>
</table>

2) Operator's Well Number: 5133138

3) Farm Name/Surface Owner: Heaster et al

4) Elevation, current ground: 1244' 
   Elevation, proposed post-construction: 1203'

5) Well Type: (a) Gas Oil Underground Storage

   Other

   (b) If Gas: Shallow Deep

   Horizontal

6) Existing Pad? Yes or No: no

7) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):

   Target formation is Marcellus at a depth of 6608' with the anticipated thickness to be 4447 feet and anticipated target pressure of 54 PSI

<table>
<thead>
<tr>
<th>Proposed Total Vertical Depth</th>
<th>Marcellus</th>
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<tbody>
<tr>
<td>6608'</td>
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</table>

   | Proposed Total Measured Depth | 15,647    |
   | 11) Proposed Horizontal Leg Length | 7,920 |

   | Approximate Fresh Water Strata Depths | 163, 210, 314, 380, 456, 594, 1078 |
   | Method to Determine Fresh Water Depth | By offset wells |

   | Approximate Saltwater Depths | 1382, 1450 |
   | Approximate Coal Seam Depths | 1266, 1306 |

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

17) Does proposed well location contain coal seams directly overlying or adjacent to an active mine? (a) If Yes, provide Mine Info: Name:

   Depth:
   Seam:
   Owner:

Page 1 of 3

RECEIVED
Office of Oil & Gas
JAN 1 2014
WV Department of
Environmental Protec

03/28/2014
### CASING AND TUBING PROGRAM

<table>
<thead>
<tr>
<th>TYPE</th>
<th>Size</th>
<th>New or Used</th>
<th>Grade</th>
<th>Weight per ft</th>
<th>FOOTAGE: for Drilling</th>
<th>INTERVALS: Left in Well</th>
<th>CEMENT: Fill-up (Cu.Ft.)</th>
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<tr>
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<td>New</td>
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<td>40</td>
<td>38</td>
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<tr>
<td>Fresh Water</td>
<td>13 3/8</td>
<td>New</td>
<td>MC-50</td>
<td>54</td>
<td>1,178</td>
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<td>1.017</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Intermediate</td>
<td>9 5/8</td>
<td>New</td>
<td>MC-50</td>
<td>40</td>
<td>5,267</td>
<td>5,267</td>
<td>2.063</td>
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<tr>
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<td>5 1/2</td>
<td>New</td>
<td>P-110</td>
<td>20</td>
<td>15,647</td>
<td>15,647</td>
<td>See Note 1</td>
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<tr>
<td>Tubing</td>
<td>2 3/8</td>
<td>J-55</td>
<td></td>
<td>4.6</td>
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### TYPE

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<tr>
<th>TYPE</th>
<th>Size</th>
<th>Wellbore Diameter</th>
<th>Wall Thickness</th>
<th>Burst Pressure</th>
<th>Cement Type</th>
<th>Cement Yield (Cu.Ft.)</th>
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**Packers**

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<tr>
<td>Depths Set:</td>
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Note 1: EQT plans to bring the TCC on the production casing job 1,000' above kick off point, which is at least 500' above the shallowest production zone, to avoid communication.
19) Describe proposed well work, including the drilling and plugging back of any pilot hole:

Dill and complet a new horizontal well in the Marcellus formation. The vertical drill to go down to an approximate depth of 5425'.

Then kick-off the horizontal leg into the Marcellus using a slick water frac.

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

Hydraulic fracturing is completed in accordance with state regulations using water recycled from previously fractured wells and obtained from freshwater sources. This water is mixed with sand and a small percentage (less than 0.3%) of chemicals including 10% Hydrochloric acid, gelting agent, gell breaker, friction reducer, biocide, and scale inhibitor, referred to in the industry as a "lostwater" completion. Maximum anticipated treating pressures are expected to average approximately 8500 psi. Maximum anticipated treating rates are expected to average approximately 100 bblm. Stage lengths vary from 150 to 300 feet. Average approximately 200,000 barrels of water per stage. Sand sizes vary from 100 mesh to 20/40 mesh. Average approximately 200,000 pounds of sand per stage.

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

37.43

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

26.22

23) Describe centralizer placement for each casing string:

- Surface: Stow sping centralizers – One at the shoe and one spaced every 500'.
- Intermediate: Bow spring centralizers – One cent at the shoe and one spaced every 500'.
- Production: One spaced every 1000' from KOP to int osn shoo

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

- Surface (Type 1 Cement): 0.3% Calcium Chloride
  Used to speed the setting of cement slurries.
- Intermediate (Type 1 Cement): 0.3% Calcium Chloride
  Salc is used in shallow, low temperature formations to speed the setting of cement slurries. 0.4% flake. Lost Circulation Material (LCM) is used to combat the loss of whole drilling fluid or cement slurry (not filtrate) to a thief zone.
- Production: 0.4-0.6% Halol (fluid loss). Reduces amount of water lost to formation.

25) Proposed borehole conditioning procedures:

- Surface: Circulate hole clear (Approximately 30-45 minutes) rotating & reciprocating one full joint until cuttings diminish at surface. When cuttings returning to surface diminish, continue to circulate an additional 5 minutes. To ensure that there is no fill, short trip two stands with no circulation. If there is fill, bring compressor back on and circulate hole clean. A constant rate of higher than expected cuttings volume likely indicates washouts that will not clean up.
- Intermediate: Circulate hole clean (Approximately 30-45 minutes) rotating & reciprocating one full joint until cuttings diminish at surface. When cuttings returning to surface diminish, continue to circulate an additional 5 minutes. If foam dripping, to enhance hole cleaning use a soap sweep or increase injection rate & foam concentration.
- Production: Pump marker sweep with mud plug to determine actual hole washout. Calculate a gauge holes bottoms up volume.

Perform a cleanup cycle by pumping 3-5 bottoms up or until the shakers are clean. Check volume of cuttings coming across the shakers every 15 minutes.

*Note: Attach additional sheets as needed.*
EQT PRODUCTION COMPANY
LEWIS MAXWELL LEASE
WELL NO. WV 513138

PROPOSED GAS WELL
NO. WV 513138

SCALE: 1"=500'

OXFORDS WELLS
H1-WV 513138
H2-WV 513139
H3-WV 513140
H4-WV 513141
H5-WV 513142
H6-WV 513143

Not To Scale

TOPO SECTION OF OXFORD 7.5'
USGS TOPO QUADRANGLE

03/28/14