PERMIT MODIFICATION APPROVAL

March 25, 2014

EQT PRODUCTION COMPANY
POST OFFICE BOX 280
BRIDGEPORT, WV26330

Re: Permit Modification Approval for API Number 1706328, Well #: WV 513139
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) 47-017-06328

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,

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.VA. CODE §52-6A - WELL WORK PERMIT APPLICATION

1) Well Operator: EOT Production Company
Operator ID: 017
County: 8
District: 526
Quadrangle:

2) Operator’s Well Number: 513139
Well Pad Name: OXF156

3) Farm Name/Surface Owner: Heaster et al
Public Road Access: CR10

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 660' with the anticipated thickness to be 447 feet and anticipated target pressure of 54 PSI

8) Proposed Total Vertical Depth: 660'
9) Formation at Total Vertical Depth: Marcellus
10) Proposed Total Measured Depth: 15,047'
11) Proposed Horizontal Leg Length: 7,920'
12) Approximate Fresh Water Strata Depths: 163, 210, 314, 380, 456, 594, 1078
13) Method to Determine Fresh Water Depth: By offset wells
14) Approximate Saltwater Depths: 1362, 1450
15) 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
### 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 n Well</th>
<th>CEMENT; Fill-up (Cu. Ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conductor</td>
<td>20</td>
<td>New</td>
<td>Varies</td>
<td>Varies</td>
<td>40</td>
<td>40</td>
<td>38</td>
</tr>
<tr>
<td>Fresh Water</td>
<td>13 3/8</td>
<td>New</td>
<td>MC-50</td>
<td>54</td>
<td>1,178</td>
<td>1,178</td>
<td>1,017</td>
</tr>
<tr>
<td>Coal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<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>
</tr>
<tr>
<td>Production</td>
<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>
</tr>
<tr>
<td>Tubing</td>
<td>2 3/8</td>
<td>J-55</td>
<td></td>
<td>4.6</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<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./Bbl)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conductor</td>
<td>20</td>
<td>26</td>
<td>0.375</td>
<td>-</td>
<td>Construction</td>
<td>1.18</td>
</tr>
<tr>
<td>Fresh Water</td>
<td>13 3/8</td>
<td>17 1/2</td>
<td>0.38</td>
<td>2,480</td>
<td>1</td>
<td>1.21</td>
</tr>
<tr>
<td>Coal</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intermediate</td>
<td>9 5/8</td>
<td>12 3/8</td>
<td>0.365</td>
<td>3,500</td>
<td>1</td>
<td>1.21</td>
</tr>
<tr>
<td>Production</td>
<td>5 1/2</td>
<td>8 1/2</td>
<td>0.361</td>
<td>12,640</td>
<td>-</td>
<td>1.27/1.86</td>
</tr>
</tbody>
</table>

**Packers**

<table>
<thead>
<tr>
<th>Kind</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sizes</td>
<td>N/A</td>
</tr>
<tr>
<td>Depths Set</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Note 1: EQT plans to bring the TOC on the production casing cement job 1,000' above kick off point, which is at least 500' above the shallowest production zone, to avoid communication.

Page 2 of 3
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 fracd wells and obtained from freshwater sources. This water is mixed with sand and a small percentage (less than 0.3%) of chemica incluging 10% Hydrochloric acid, geling agent, gel breaker, friction reducer, biocide, and scale inhibitor, referred to in the industry as a “slickwater” completion. Maximum anticipated treatment pressures are expected to average approximately 8500 psi. Maximum anticipated testing rates are expected to average approximately 100 bpm. Stage lengths vary from 150 to 300 feet. Average approximately 200,000 barrels of water per stage. Sand sizes vary from 150 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: Bow spring centralizers – One at the shoe and one spaced every 50'.
- Intermediate: Bow spring centralizers– One cent at the shoe and one spaced every 500'.
- Production: One spaced every 1000' from KOP to Int cov shoe

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): 0.4% Calcium Chloride, Salt is used in shallow, low temperature formations to speed the setting of cement slurries.

- Production: One spaced every 1000' from KOP to Int cov shoe


- Surface: 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. To ensure that there is no fill, short trip two stands with no circulation. If there is fill, bring compressors 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 drilling, to enhance hole cleaning use a soap sweep or increase injection rate & foam concentration.

Production: Pump marker sweep with mud plugging to determine actual hole volume. 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.