PERMIT MODIFICATION APPROVAL

October 08, 2013

GASTAR EXPLORATION USA, INC.
229 WEST MAIN STREET, SUITE 301
CLARKSBURG, WV 26301

Re: Permit Modification Approval for API Number 5101568, Well #: HOYT-NORTH NO. 1H Extended lateral

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

Promoting a healthy environment.
August 12, 2013

WVDEP-Office of Oil & Gas
Attn: Laura Cooper
601 57th Street SE
Charleston, WV 25304

VIA: USPS

Re: Permit Modifications
  Hoyt – North No. 1H (051-01568), Marshall County
  Hoyt – North No. 2H (051-01567), Marshall County

Dear Laura:

Enclosed herein for your review and further handling, please find Permit Modifications, modifying the horizontal legs for the above referenced wells

If you have any questions or need additional information, please feel free to contact me at 304/966-0362.

Sincerely,

[Signature]

DAVE PERKISON
Landman

Received
AUG 14 2013

Gastar Exploration LTD.
229 West Main Street, Suite 301 · Clarksburg, WV 26301
Phone: (304) 622-4796 · Fax: (304) 622-4824

10/11/2013
STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
W.VA. CODE §22-6A - WELL WORK PERMIT APPLICATION

1) Well Operator: Gastar Exploration USA, Inc. 494487685 Marshall  Franklin  Pohatcon Point 7.5'
Operator ID  County  District  Quadrangle

2) Operator’s Well Number: Hoyt No. 1H  Well Pad Name: Hoyt

3) Elevation, current ground: 1386'  Elevation, proposed post-construction: 1364'

4) Well Type: (a) Gas ______  Oil ______
(b) If Gas: Shallow ______  Deep ______
Horizontal ______

5) Existing Pad? Yes or No: No

6) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):
The Marcellus is the target formation at a depth of 6600' (top of formation), an anticipated thickness of 50' and a pressure of 3000 psi.

7) Proposed Total Vertical Depth: 6642'
8) Formation at Total Vertical Depth: Marcellus
9) Proposed Total Measured Depth: 11,794'
10) Approximate Fresh Water Strata Depths: 50'
11) Method to Determine Fresh Water Depth: Gastar has drilled several wells in this area and we note where we pick up water.
12) Approximate Saltwater Depths: 1600'
13) Approximate Coal Seam Depths: 1000' & 1100'
14) Approximate Depth to Possible Void (coal mine, karst, other): None
15) Does land contain coal seams tributary or adjacent to, active mine? No
16) Describe proposed well work: Drill through the Marcellus tagging less than one hundred (100') feet from the top of the Onondaga to get depths and log data. Then plug the well back to proposed kick off point (TBD). Drill the horizontal section to planned and proposed TD. Run casing and cement back to surface. Run a bond log on part of the curve and vertical section, pressure test casing and set a master valve. Make a clean out run on the casing and perforate then stimulate.

17) Describe fracturing/stimulating methods in detail:
Gastar Exploration plans to fracture the well using a typical slickwater fracture design. Gastar will pump roughly 4500bbls of water and 250,000 lbs of sand per stage. There will be approximately 16 stages on the fracturing job.

18) Total area to be disturbed, including roads, stockpile area, pits, etc, (acres): 26.92 Acres
19) Area to be disturbed for well pad only, less access road (acres): 5.77 Acres

Received

10/11/2013
## 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>
</tr>
</thead>
<tbody>
<tr>
<td>Conductor</td>
<td>20&quot;</td>
<td>New</td>
<td>PE</td>
<td>54.5 #/ft</td>
<td>110'</td>
<td>Cement to Surface</td>
<td></td>
</tr>
<tr>
<td>Fresh Water</td>
<td>13 3/8&quot;</td>
<td>New</td>
<td>H-40</td>
<td>48 #/ft</td>
<td>1150'</td>
<td>Cement to Surface</td>
<td></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&quot;</td>
<td>New</td>
<td>J-55</td>
<td>36 #/ft</td>
<td>2550'</td>
<td>Cement to Surface</td>
<td></td>
</tr>
<tr>
<td>Production</td>
<td>5 1/2&quot;</td>
<td>New</td>
<td>P-110</td>
<td>20 #/ft</td>
<td>11,794'</td>
<td>Cement to Surface</td>
<td></td>
</tr>
<tr>
<td>Tubing</td>
<td>2 3/8&quot;</td>
<td>New</td>
<td>N-80</td>
<td>4.7 #/ft</td>
<td>7200'</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liners</td>
<td></td>
<td></td>
<td></td>
<td></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</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conductor</td>
<td>20&quot;</td>
<td>26&quot;</td>
<td>.25&quot;</td>
<td>880 psi</td>
<td>Type I + 3% CaCl</td>
<td>1.2 cuft/sack</td>
</tr>
<tr>
<td>Fresh Water</td>
<td>13 3/8&quot;</td>
<td>17&quot;</td>
<td>.33&quot;</td>
<td>1730 psi</td>
<td>See # 22</td>
<td>1.2 cuft/sack</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&quot;</td>
<td>12 1/4&quot;</td>
<td>.352&quot;</td>
<td>3520 psi</td>
<td>See # 22</td>
<td>1.2 Cuft/sack</td>
</tr>
<tr>
<td>Production</td>
<td>5 1/2&quot;</td>
<td>8 7/8&quot; &amp; 8 3/4&quot;</td>
<td>.361&quot;</td>
<td>12,640 psi</td>
<td>See #22</td>
<td>1.18 Cuft/sack</td>
</tr>
<tr>
<td>Tubing</td>
<td>2 3/8&quot;</td>
<td></td>
<td>.19&quot;</td>
<td>11,200 psi</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liners</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></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>

Received

10/11/2013

Office of Oil and Gas
WV Dept. of Environmental Protection