PERMIT MODIFICATION APPROVAL

August 01, 2013

NOBLE ENERGY, INC.
333 TECHNOLOGY DRIVE, SUITE 110
CANONSBURG, PA 15317

Re: Permit Modification Approval for API Number 5101634, Well #: SHL17FHS
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,

[Signature]
Gene Smith
Regulatory/Compliance Manager
Office of Oil and Gas
West Virginia Department of Environmental Protection
Office of Oil and Gas,
601 57th Street, SE
Charleston, WV  25304

June 13, 2013

Re: Drilling Permit Application – “SHL1FHS API# 47-051-01634 Modification”

Dear Laura,

Enclosed please find a revised mylar extending the lateral leg. I have also included a revised WW6A1 form with the lease information listed for the tracts we are crossing. This well is located in Marshall County, WV.

If any further information or correspondence is required, please contact me at Office (724)820-3061 Cell 412-310-8967 or Dswiger@nobleenergyinc.com.

Sincerely,

Dee Swiger

DS/

Enclosure(s):
STATE OF WEST VIRGINIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION, OFFICE OF OIL AND GAS
W.V.A. CODE §22-6A - WELL WORK PERMIT APPLICATION


2) Operator’s Well Number: SHL17 FHS  Well Pad Name: SHL17HS

3) Elevation, current ground: 1287.67’  Elevation, proposed post-construction: 1295’

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

5) Existing Pad? Yes or No: Yes - Currently being built

6) Proposed Target Formation(s), Depth(s), Anticipated Thicknesses and Associated Pressure(s):
   Target - Marcellus, Depth - 6646’, Thickness - 48’, Pressure - 4418#

7) Proposed Total Vertical Depth: 6684’
8) Formation at Total Vertical Depth: Marcellus
9) Proposed Total Measured Depth: 17,323’
10) Approximate Fresh Water Strata Depths: 682’, 945, 1042
11) Method to Determine Fresh Water Depth: Seneca Technology data base
12) Approximate Saltwater Depths: none
13) Approximate Coal Seam Depths: Pittsburgh - 763.9’ - 769.5 We will be drilling into a Pillar
    Pittsburgh - 763.9’ - 769.5 We will be drilling into a Pillar
14) Approximate Depth to Possible Void (coal mine, karst, other): Pittsburgh - 763.9’ - 769.5 We will be drilling into a Pillar
    Yes - Shoemaker Mine approx. 2 miles away.
15) Does land contain coal seams tributary or adjacent to, active mine? Yes - Shoemaker Mine approx. 2 miles away.
16) Describe proposed well work: Drill the vertical depth to the Marcellus estimated total vertical depth of approximately 6,684 feet.
    Drill horizontal leg - stimulate and produce the Marcellus Formation.
    Total measured depth of 17,323 feet.
    **If an unanticipated void is encountered we will set place baskets at least 30’ but not more than 50’ below bottom of void and grout to surface.

17) Describe fracturing/stimulating methods in detail:
The stimulation will be multiple stages divided over the lateral length of the well. Stage spacing is dependent upon engineering design. Slickwater fracturing techniques will be utilized on each stage using sand, water, and chemicals.

18) Total area to be disturbed, including roads, stockpile area, pits, etc., (acres): 19.4 acres
19) Area to be disturbed for well pad only, less access road (acres): 5.9 acres

RECEIVED
Office of Oil and Gas
AUG 0 1 2013
WV Department of Environmental Protection

08/02/2013
### CASING AND TUBING PROGRAM

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<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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<td>94</td>
<td>40'</td>
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<td>J55</td>
<td>54.5</td>
<td>1142'</td>
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<td>CTS / 15.6 ppg Yield 1.18</td>
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We would like to drill through all the freshwater and coal bearing zones before running casing. We plan to drill no more than 100' below the deepest freshwater and/or coal bearing zone(s) and run casing which will be circulated with cement to the surface.

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### PACKERS

- **Kind:**
- **Sizes:**
- **Depths Set:**

**Received by Office of Oil & Gas**

**08/02/2013**