

September 6, 2019

6230-4535-32640-60

Brittany Jorgensen, P.Eng.
Exploitation Engineer
Canadian Natural Resources Limited
Suite 2100, 885 – 2nd Street SW
Calgary, Alberta, T2P 4J8

Dear Ms. Jorgensen,

**RE: OBSERVATION WELL STATUS APPROVAL
CNRL ET AL MUSKRAT A3-13-87-18 (WA 9446)
MUSKRAT – BOUNDARY LAKE ‘A’**

BC Oil and Gas Commission (Commission) staff have reviewed the September 3, 2019 application from Canadian Natural Resources Limited (CNRL) seeking observation well designation for CNRL et al Muskrat A3-13-87-18 (WA 9446).

The Drilling and Production Regulation Part 1 defines an observation well as “a well or a portion of a well designated as an observation well under section 2 (7)”.

- 2 (7) An official may designate a well as an observation well if
- (a) the well is being used to monitor reservoir pressures or to obtain other formation information, and
 - (b) the well is not used to produce from, or inject or dispose of fluids into, a formation being monitored.

The subject well was drilled in 1995 and the Boundary Lake formation was completed for the purpose of oil production; the last reported production from the well is dated November 2001. A waterflood pressure maintenance project was approved for the Muskrat field, Boundary Lake ‘A’ pool in September 2002. The subject well was an active water injector from May 2002 until February 2018. The recent fluid shot taken on the well calculated a bottom hole pressure in exceedance of the initial pool pressure.

CNRL is requesting use of this well to monitor reservoir pressure in the Muskrat, Boundary Lake ‘A’ pool to further understand the pressure dissipation in the pool over time. CNRL is proposing annual reservoir pressure testing be completed in the pool.

Approval of observation status is granted for CNRL et al Muskrat A3-13-87-18, for the Boundary Lake ‘A’ pool, with the following requirements;

- conduct a reservoir pressure test annually, and
- conduct a reservoir pressure test using downhole recorders before December 2020.

Please be reminded that all reservoir pressure tests conducted must be submitted to the Commission within sixty days of the date on which the pressure was measured.

Should you have any questions, please contact Kathryn Archibald at (250) 419-4406 or the undersigned at (250) 419-4430.

Sincerely,



Ron Stefik, Eng. L.
Supervisor, Reservoir Engineering
Oil and Gas Commission