

August 28, 2017

4300-7400-32640-60

Lynn Wood, P.Eng
Exploitation Engineer – BC South
Canadian Natural Resources Ltd.
Suite 2500, 885 – 2nd Street SW
Calgary, Alberta, T2P 4J8

Dear Ms. Wood,

**RE: OBSERVATION WELL DESIGNATION APPROVAL
CNRL ET AL GRAHAM d-A6-C/94-B-9 (WA 12191)
GRAHAM – DEBOLT**

The BC Oil and Gas Commission (Commission) is presently reviewing observation wells, to confirm the suitability of this status and amend or rescind approvals, to conform to current requirements. Staff have reviewed the observation well in the Graham field, Debolt pool; CNRL et al Graham d-A6-C/94-B-9 (WA 12191).

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 1999 and the Debolt, Doig, Halfway and Charlie Lake formations were perforated, but did not produce. The Halfway and Charlie Lake perforations were cement squeezed in 2000 and the Doig perforations in 2001. The Debolt formation was approved for salt water disposal in April 2001 and was used for disposal from 2002 until 2015. A casing leak repair was performed in 2006. Remedial cement squeezes were performed on the Halfway and Doig perforations in 2013. Approval Order 01-02-006 for disposal into the Debolt formation was terminated on July 1, 2015. The status of the Debolt formation completion event was updated to observation in February 2016. On-going seismic events plotted at the Debolt depth have been observed since disposal operations concluded and continued monitoring of the reservoir pressure is required.

Approval of observation status is granted for CNRL et al Graham d-A6-C/94-B-9 (WA 12191), for the Debolt formation, with the following requirements:

- conduct a reservoir pressure test annually, with the next test occurring in 2018
- conduct a static gradient test within 24 months.

Any additional reservoir pressure tests conducted must also be submitted to the Commission as per sections 73(3) and 73(4) of the Drilling and Production Regulation.

Should you have any questions, please contact Kathryn Archibald at (250) 419-4457 or the undersigned at (250) 419-4430.

Sincerely,



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