



December 5, 2014

5560-4800-59240-09

Kelly Okuszko, P.Eng.  
Exploitation Engineer  
Canadian Natural Resources Ltd.  
2500, 855 – 2<sup>nd</sup> Street S.W.  
CALGARY, AB T2P 4J8

Dear Ms. Okuszko:

**RE: PRESSURE MAINTENANCE WATERFLOOD ORDER, AMENDMENT #3  
OTHER THAN NORMAL SPACING ORDER, AMENDMENT #3  
LAPP FIELD – HALFWAY “D” POOL**

The Commission has reviewed your application, dated November 25<sup>th</sup>, 2014, requesting an amendment to Order 01-09-004 Amendment #2 to convert observation well CNRL et al Lapp a-A50-C/94-H-10 (bottom hole c-40-C) to a Halfway ‘D’ water injection well. This conversion will improve the sweep efficiency and provide pressure support to increase oil recovery.

The following Orders are attached;

- 1) Order 01-09-004 Amendment #3 designating Pressure Maintenance Waterflood, within the Lapp field – Halfway “D” pool, as a Special Project under section 75 of the *Oil and Gas Activities Act*, and
- 2) Order 01-09-004 Amendment #3 - OTN approving Other Than Normal Spacing under section 65.1 of the *Petroleum and Natural Gas Act* for the subject formation and area.

Please note that, as per section 75 of the *Drilling and Production Regulation*, a record of the volume of water injected must be included on a Monthly Injection or Disposal Statement (BC-S18), which must be submitted to the Commission no later than the 25<sup>th</sup> day of the month in which activity occurred. This order includes the maximum injection pressure to safely operate both injection wells.

Should you have any questions, please contact Petra Kriescher-Trudgeon at (250) 419-4415 or the undersigned at (250) 419-4430.

Sincerely,

A handwritten signature in black ink, appearing to read "Ron Stefik", written over a horizontal line.

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

Attachments

IN THE MATTER of an application from Canadian Natural Resources Ltd. to the Commission dated November 25<sup>th</sup>, 2014 for the production of oil using pressure maintenance (water injection).

**ORDER 01-09-004 Amendment #3**

1. Under Section 65.1(2) of the *Petroleum and Natural Gas Act*, Other Than Normal Spacing is approved within Lapp field – Halfway ‘D’ pool within the following area;

NTS 094 -H -10 Block C Units 40 and 50

2. Under section 75(2) of the *Oil and Gas Activities Act*, I specify the following:

a) The project oil allowable for a month shall be based on the previous month’s voidage replacement.

b) All associated produced gas must be conserved.

c) Water may be injected into the Lapp Halfway “D” pool through wells:

CNRL Lapp Halfway d-30-C/94-H-10 (BH b-40-C); WA 14817

CNRL Lapp Halfway a-A50-C/94-H-10 (BH c-40-C); WA 14051

d) The maximum injection pressure for the injection wells (c) measured at the wellhead must not exceed 7,800 kPa.

e) The permit holder must submit a Progress Report to the Commission for each 12 month period the project is in operation. The Progress Report must be filed within 60 days after the end of each period and must contain the following:

i) the daily average rate during each month of oil production for each producing well, and for the project as a whole

ii) the average gas-oil and water-oil rates during each month for each producing well, and for the project as a whole

iii) the monthly cumulative gas, oil and water production for each producing well, and for the project as a whole


iv) for each type of fluid being injected, the daily average rate of injection per operating day during each month into each injection well, and for the project as a whole

v) for each type of fluid being injected, the weighted average wellhead injection pressure during each month for each injection well, and for the project as a whole

vi) for each type of fluid being injected, the monthly cumulative volume of fluid injected to each injection well, and for the project as a whole

**ORDER 01-09-004 Amendment #3**

- vii) the current volumetrically weighted formation pressure for the project as a whole and a copy of the isobaric map from which this pressure was calculated
- viii) the date and type of any well treatment or workover which must be indicated, in the case of injection wells, on the report of the injected volume, and in the case of producing wells, on the report of the daily average oil production rate
- ix) calculations of the balance during each month between fluids injected into, and fluids withdrawn from, the part of the pool subject to the project and by individual patterns, where applicable
- x) an outline of the method actually in use for the quality control and treatment of fluid being injected, or, where there has been no change in the control or treatment from that outlined in a previous report, a statement to that effect.



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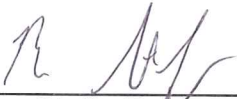
Ron Stefik, Eng.L.  
Supervisor, Reservoir Engineering  
Oil and Gas Commission

DATED AT the City of Victoria, in the Province of British Columbia, this 5<sup>th</sup> day of December 2014.

IN THE MATTER of an application from Canadian Natural Resources Ltd. to the Oil and Gas Commission dated November 25<sup>th</sup>, 2014 for Other Than Normal Spacing.

**ORDER 01-09-004 Amendment #3 - OTN**

- 1 Under Section 65.1(2) of the *Petroleum and Natural Gas Act*, Other Than Normal Spacing is approved within the Lapp field – Halfway 'D' pool within the following area;  
NTS 094 - H - 10 Block C Units 40 and 50
- 2 Under section 65.1(3) of the *Petroleum and Natural Gas Act*, I specify the following:
  - a) the target area for an oil well completed within the project area is not nearer than 100 m to the sides of the Other Than Normal Spacing area,
  - b) an oil well completed outside the target area specified in paragraph (a) may be subject to an off-target production penalty,
  - c) oil wells drilled within the specified project area are not subject to spacing requirements.



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

DATED AT the City of Victoria, in the Province of British Columbia, this 5<sup>th</sup> day of December 2014.