

December 19, 2014

4700-8125-59240-07

Kelly Okuszko, P.Eng.
Exploitation Engineer
Canadian Natural Resources Limited
2500, 855 – 2nd Street SW
CALGARY, AB T2P 4J8

Dear Ms. Okuszko:

**RE: CONCURRENT PRODUCTION SPECIAL PROJECT
OTHER THAN NORMAL SPACING ORDER
HELMET FIELD – TETCHO ‘C’ POOL**

The Commission has reviewed your application, dated October 22, 2014, requesting concurrent production approval for the Helmet field – Tetcho ‘C’ pool.

Production from the Tetcho ‘C’ pool commenced in March 2012. Currently there are 2 wells in the ‘C’ pool - d-A55-C/94-P-8 (WA 27937) and b-A86-C/94-P-8 (WA 28508). These horizontal wells were hydraulically fractured to maximize recovery from the low permeability Tetcho formation. Oil production is normally subject to daily oil allowable restriction as a conservation and equity measure. However, the very low permeability of the Tetcho, requiring hydraulic fracture stimulation for economic production, limited well drainage areas and lack of apparent secondary recovery potential are not conducive to normal gas-oil ratio adjusted production allowable restrictions. The d-A55-C well consistently exceeds the adjusted production allowable, with resulting shut-in period to retire oil overproduction, and has not displayed a gas-oil-ratio sensitivity to production rate.

The following Orders are attached:

- 1) Order 14-07-004 designating Concurrent Production for the Helmet field - Tetcho pool as a Special Project under section 75 of the *Oil and Gas Activities Act*, and
- 2) Order 14-07-004-OTN approving Other Than Normal Spacing under section 65.1 of the *Petroleum and Natural Gas Act* for the subject field and pool.

Oil allowable restrictions will no longer apply to the wells in this pool. However, monitoring the production to ensure the GOR does not become excessive (greater than 1800 m³/m³), is required to maximize oil recovery. This approval is subject to future re-evaluation based on performance.

Should you have any questions, please contact the undersigned at (250) 419-4430 or Michelle Gaucher (250) 419-4482.

Sincerely,



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

Attachments

IN THE MATTER of an application from Canadian Natural Resources Limited to the Commission dated October 22, 2014 for a Concurrent Production project approval.

ORDER 14-07-004

- 1 Under Section 75(1)(a) of the *Oil and Gas Activities Act*, the Helmet field – Tetcho 'C' formation is designated as a special project for enhanced recovery of petroleum and natural gas utilizing Concurrent Production within the following area;
NTS 94-P-08 Block C – Units 54 - 57, 64 - 67, 74 – 77 and 84 - 87.
- 2 Under section 75(2) of the *Oil and Gas Activities Act*, I specify the following:
 - a) The project daily oil allowable is waived.
 - b) The project daily gas limit is waived.
 - c) All produced gas must be conserved.
 - d) The Commission must be contacted should the gas-oil ratio of any well exceed a value of $1,800 \text{ m}^3/\text{m}^3$.



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

DATED AT the City of Victoria, in the Province of British Columbia, this 19th day of December 2014.

IN THE MATTER of an application from Canadian Natural Resources Limited to the Commission dated October 22, 2014 for Other Than Normal Spacing.

ORDER 14-07-004-OTN

- 1 Under Section 65.1(2) of the *Petroleum and Natural Gas Act*, Other Than Normal Spacing is approved within the Helmet field - Tetcho 'C' oil pool within the following area;

NTS 94-P-08 Block C – Units 54 - 57, 64 - 67, 74 – 77 and 84 - 87.

- 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 specified target area may be subject to an off-target production penalty,
 - c) oil wells drilled within the specified project area are not subject to spacing requirements.



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

DATED AT the City of Victoria, in the Province of British Columbia, this 19th day of December, 2014.