

March 23, 2009

7000-4800-59240-09

Mr. Davin Yee, P.Eng. Exploitation Engineer Canadian Natural Resources Limited 2500, 855 – 2 Street SW Calgary, AB T2P 4J8

Dear Mr. Yee:

RE: APPLICATION TO AMEND WATERFLOOD APPROVAL PEEJAY WEST – HALFWAY "A"

Commission staff have reviewed your application, dated December 16, 2008 requesting approval to amend the pressure maintenance waterflood approval issued for the subject pool, specifically expanding the area and converting the wells **CNRL W Peejay d-23-G/94-A-15 (WA #7941)** and **CNRL W Peejay b-54-G/94-A-15 (WA #10344)** to water injection service.

Upon geological and engineering review we concur that the pool previously mapped as the separate Peejay West Halfway "D" should be amalgamated with the Halfway "A". "D" pool wells have shown beneficial response from pressure maintenance operation of the "A" pool. The proposed conversion of additional wells to water injection service should result in improved oil recovery. Planned reservoir pressure testing and increased voidage replacement constitute prudent resource management.

Attached is Approval # 96-09-007 (Amendment #2) for the application, granted under Section 100 of the <u>Petroleum and Natural Gas Act</u>. This amendment expands the area to include units 22 and 23-G/94-A-15 and designates wells d-23-G and b-54-G as water injection locations.

Good Engineering Practice Approvals # 93-06-002 (units 22,23-G/94-A-15) and # 03-06-011 (unit 32-G/94-A-15), previously granted for portions of the Peejay West Halfway "D" pool, are hereby rescinded. The Halfway "A" scheme oil production allowable, based on voidage replacement, will now include these additional wells.

Should you have any questions, please contact Ron Stefik at (250) 952-0310.

Sincerely,

for Richard Slocomb, P.Eng. Supervisor, Reservoir Engineering

Resource Conservation

## **APPROVAL 96-09-007 (Amendment #2)**

## THE PROVINCE OF BRITISH COLUMBIA PETROLEUM AND NATURAL GAS ACT OIL AND GAS COMMISSION

IN THE MATTER of a pressure maintenance scheme of Canadian Natural Resources Limited (CNRL) for waterflood recovery of oil by water injection into the Peejay West – Halfway "A" pool.

The approval granted pursuant to Section 100 of the Petroleum and Natural Gas Act is hereby amended as follows:

The pressure maintenance scheme of CNRL for waterflood recovery of oil from the Peejay West – Halfway "A" pool as originally approved dated May 6, 1997 and last amended February 22, 1999, is hereby amended, subject to the terms herein contained:

- The area of the pressure maintenance scheme consists of:
  94-A-15 Block G Units 22, 23, 32, 33, 42 44, 53, 54, 64 and 65.
- 2. The oil production allowable for a month shall be based on the previous month's voidage replacement.
- 3. An oil well may be drilled anywhere within the scheme area provided that it is not nearer than 100 m to the sides of the area.
- 4. Water may be injected into the wells located at d-23-G, c-33-G, b-44-G, and b-54-G/94-A-15.
- 5. The injection pressure measured at the sandface must not exceed the formation fracture pressure.
- 6. All associated gas must be conserved.
- 7. Progress Reports shall be filed as stipulated in Section 8 of the *Petroleum and Natural Gas General Regulation*.
- 8. The operations of the pressure maintenance scheme shall be subject to periodic review and modification to the approval may be ordered, if deemed appropriate.

Richard Slocomb

Supervisor, Reservoir Engineering

Resource Conservation

DATED AT the City of Victoria, in the Province of British Columbia, this 23<sup>rd</sup> day of March, 2009.