



September 24, 2009

1260-4100-59240-09

Brent Wychopen, P. Eng.
Exploitation Engineer
Canadian Natural Resources
2100, 222 – 3rd Avenue SW
Calgary, AB T2P 0B4

Dear Mr. Wychopen:

**RE: WATERFLOOD PRESSURE MAINTENANCE APPROVAL
BIRCH BALDONNEL 'C' POOL**

The Commission has reviewed your application, dated August 6, 2009, requesting a pilot pressure maintenance waterflood approval for the subject oil pool.

Pool production commenced in February 1979, with current cumulative oil at $530 \times 10^3 \text{ m}^3$ from an estimated OOIP of $3,667 \times 10^3 \text{ m}^3$. The current reservoir pressure is approximately 6,000 kPa, from an initial value of 11,500 kPa. The producing oil rate and GOR are fairly stable.

The pilot project is expected to identify variations in reservoir continuity and will assist in providing valuable information for efficient future waterflood development. Waterflood pressure maintenance is expected to increase oil recovery within the pool.

Notice of this application was posted to the OGC web site, with no objections received. Attached is Approval # 09-09-002 for the Pressure Maintenance application, granted under section 100 of the *Petroleum and Natural Gas Act*. Also attached is Approval # 93-06-006 (Amendment #1) for the existing Good Engineering Practices scheme approval, granted under section 101 of the *Drilling and Production Regulation*. The amendment reflects a change in scheme approval area, a consequence of issuing the waterflood pilot approval. Injection activation will require written notification and submission of the form Monthly Injection/Disposal Statement (BC-S18).

Should you have any questions, please contact Travis Mercure at (250) 419-4448.

Sincerely,

A handwritten signature in black ink, appearing to read 'Richard Slocomb'.

Richard Slocomb, P.Eng.
Supervisor, Reservoir Engineering
Resource Conservation

Attachment

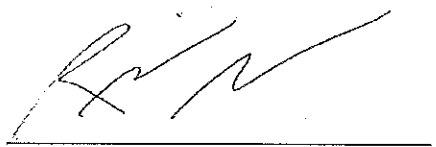
APPROVAL 09-09-002

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 (CNRL) for waterflood recovery of oil by water injection into the Birch field Baldonnel "C" pool.

A pressure maintenance scheme for CNRL for waterflood recovery of oil from the Baldonnel "C" pool is hereby granted approval pursuant to Section 100 of the Petroleum and Natural Gas Act, subject to the terms herein contained:

1. The area of the pressure maintenance scheme consists of:
94-A-13 Block I – units 29, 30, 38-40, 45
2. The daily oil allowable is waived.
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 well D-39-1/94-A-13 (WA# 8144).
5. The injection pressure measured at the sandface must not exceed the formation fracture pressure.
6. All associated gas must be conserved.
7. The effective date shall be the date that injection into the well in (4) commences, with written notification to this office.
8. Progress Reports shall be filed as stipulated in Section 8 of the *Petroleum and Natural Gas General Regulation*.
9. 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 24th day of September 2009.