



September 18, 2001

7900-4580-59240-09
OGC - 01177

ENCAL PROJECT (03)

Roger Sakatch
Senior Reservoir Engineer
Calpine Canada Energy Ltd.
1800, 421 Seventh Ave. S.W.
Calgary, AB T2P 4K9

Dear Mr. Sakatch:

**RE: PRESSURE MAINTENANCE APPROVAL, AMENDMENT #2
SQUIRREL NORTH PINE "C" POOL**

The Commission has reviewed your application dated September 7, 2001, requesting an amendment to the waterflood and gas injection pressure maintenance scheme approval for the subject oil pool.

Attached is Approval # 01-09-001 (Amendment #2) for the application, granted under Section 100 of the Petroleum and Natural Gas Act.

The waterflood performance in the pool appears to be showing positive response around the injector 7-36. However, it is considered premature to grant the oil production allowables requested. As a consequence, the project daily oil allowable is increased to 300.0 m³. Gas-oil ratio penalties will continue to be based on net gas produced from the project, re-injected gas noted as "Gas Credit" on the monthly Production Allowable Report.

The reservoir simulation study for this pool indicates a good probability for success under the proposed mode of operations. The Commission is willing to review this approval, specifically the daily oil allowable, in several months time should a continued favourable response to the pressure maintenance operations be indicated.

Sincerely,

Craig Gibson, P. Eng.
Manager
Reservoir Engineering and Geology

Attachment

Approval Letters to Industry
GEP, SWD, CONCURRENT PROD,
PRESSURE MAINTENANCE,
WATERFLOOD, ETC.

Copy 9

- Wellfile (originals)
- 59240
- Daily
- Resource Revenue
- S. Chicorelli
- R. Stefik
- G. Farr
- P. Attariwala
- D. Krezanoski

ENGINEERING AND GE
PO Box 9329 Stn Prov Gov't, Victoria BC V8W 9N
Location: 6th Flr 1810 Blanshard St. Victoria BC

APPROVAL 01-09-001 (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 Calpine Canada (Calpine), previously Encal Energy Ltd., for recovery of oil by water and gas injection in the Squirrel North Pine "C" Pool.

NOW THEREFORE, the Commission, pursuant to Section 100 of the Petroleum and Natural Gas Act, R.S.B.C. 1996, c.361 orders as follows:

The pressure maintenance scheme of Calpine for recovery of oil by waterflooding and produced gas re-injection in the Squirrel North Pine "C" Pool as described in the application from Calpine to the Commission dated February 6, June 14 and September 7, 2001 is amended, subject to the following terms:

1. The project area of the pressure maintenance scheme consists of NW/4 sec 30 and sec 31-87-19 W6M, N/2 sec 25, NE/4 sec 26, sec 35 and sec 36-87-20 W6M, sec 6-88-19 W6M, sec 1 , S/2 sec 2 and NE/4 sec 2-88-20 W6M.
2. The reserves based project daily oil allowable is 300.0 m³.
3. Water may be injected into the Squirrel North Pine "C" pool through the wells 3-35, 7-36-87-20, 4-6-88-19 and 1-2-88-20 W6M.
4. Produced gas may be re-injected into the Squirrel North Pine "C" pool through the well 7-31-87-19 W6M.
5. All gas injection will be deducted from produced gas in calculating gas-oil ratios for the project oil allowable.
6. The injection pressure measured at the sandface must not exceed the formation fracture pressure.
7. An oil well may be completed anywhere within the project area provided that it is not nearer than 100 m to the sides of the project area.
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 will be subject to periodic review and modification to the approval may be ordered, if deemed appropriate.



Craig Gibson
Manager
Reservoir Engineering and Geology

DATED AT the City of Victoria, in the Province of British Columbia, this ^{8th} day of September, 2001.