

January 11, 2011

2000-4800-59240-06

Gordon Thompson Consultant KXL Exploration Ltd. 850, 700 – 4<sup>th</sup> Ave. SW CALGARY, AB T2P 3J4

Dear Mr. Thompson:

RE:

CONCURRENT PRODUCTION SPECIAL PROJECTS
OTHER THAN NORMAL SPACING ORDERS

BOUNDARY LAKE FIELD - HALFWAY "K" AND "M" POOLS

The Commission has reviewed your application dated June 30, 2010, requesting approval of Good Engineering Practice and Concurrent Production for the Boundary Lake Halfway "K" and "M" pools.

The Boundary Lake Halfway "K" and "M" pools have been producing since 2002 and 2008 respectively. While pool development is ongoing, KXL is currently limited in oil production capability due to GOR penalty factors applied to individual wells within the pools.

The OGC agrees with KXL that approving pool based Oil and Gas Allowables would help improve production capabilities for wells within the respective pools without significantly sacrificing recoverable oil and gas reserves.

As a result of recent legislative changes, authorities previously contained in a single approval document for this activity are now covered in the attached;

- 1) Orders 11-07-001 and 11-07-002 designating Concurrent Production for the Boundary Lake field Halfway "K" and "M" pools as Special Projects under section 75 of the *Oil and Gas Activities Act*, and
- 2) Orders 11-07-001-OTN and 11-07-002-OTN approving Other Than Normal Spacing under section 65.1 of the *Petroleum and Natural Gas Act* for the subject field and pools.

Should you have any questions, please contact the undersigned at (250) 419-4421 or Travis Mercure (250) 419-4448.

Sincerely,

Richard Slocomb, P. Eng.

Supervisor, Reservoir Engineering

Resource Conservation

Attachments

IN THE MATTER of an application from KXL Energy Ltd. to the Commission dated June 30, 2010 for a Concurrent Production project.

# ORDER 11-07-001

- Under Section 75(1)(a) of the Oil and Gas Activities Act, the Boundary Lake field –
  Halfway "K" pool is designated as a special project for enhanced recovery of petroleum
  and natural gas utilizing Concurrent Production within the following area;
  - DLS Twn 86 Rge 13 W6M NW/4 Fractional Section 4
  - DLS Twn 86 Rge 13 W6M NE/4 Section 5
  - DLS Twn 86 Rge 13 W6M Section 8
  - DLS Twn 86 Rge 13 W6M W/2 Fractional Section 9
  - DLS Twn 86 Rge 13 W6M SW/4 Fractional Section 16
  - DLS Twn 86 Rge 13 W6M SE/4 Section 17.
- 2. The project daily oil allowable is 90.9 m³.
- 3. The project daily gas limit is 32 10<sup>3</sup>m<sup>3</sup>.
- 4. All produced gas must be conserved.

Alex Ferguson Comissioner

Oil and Gas Commission

DATED AT the City of Victoria, in the Province of British Columbia, this // day of January 2011.

IN THE MATTER of an application from KXL Energy Ltd. to the Commission dated June 30, 2010 for Other Than Normal Spacing.

# **ORDER 11-07-001-OTN**

1 Under Section 65.1(2) of the *Petroleum and Natural Gas Act*, Other Than Normal Spacing is approved within the Boundary Lake field Halfway "K" oil pool within the following area;

DLS Twn 86 Rge 13 W6M - NW/4 Fractional Section 4

DLS Twn 86 Rge 13 W6M - NE/4 Section 5

DLS Twn 86 Rge 13 W6M - Section 8

DLS Twn 86 Rge 13 W6M - W/2 Fractional Section 9

DLS Twn 86 Rge 13 W6M - SW/4 Fractional Section 16

DLS Twn 86 Rge 13 W6M - SE/4 Section 17.

- 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.

Richard Slocomb

Supervisor, Reservoir Engineering

Oil and Gas Commission

DATED AT the City of Victoria, in the Province of British Columbia, this  $\int \int$  day of January 2011.

IN THE MATTER of an application from KXL Energy Ltd. to the Commission dated June 30, 2010 for a Concurrent Production project.

### ORDER 11-07-002

1. Under Section 75(1)(a) of the *Oil and Gas Activities Act*, the Boundary Lake field – Halfway "M" pool is designated as a special project for enhanced recovery of petroleum and natural gas utilizing Concurrent Production within the following area;

DLS Twn 86 Rge 13 W6M – NW/4 Fractional Section 16 DLS Twn 86 Rge 13 W6M – NE/4 Section 17

DLS Twn 86 Rge 13 W6M – Ne/4 Section 10

DLS Twn 86 Rge 13 W6M - W/2 Fractional Section 21.

- 2. The project daily oil allowable is 56.5 m<sup>3</sup>.
- 3. The project daily gas limit is 20 10<sup>3</sup>m<sup>3</sup>.
- 4. All produced gas must be conserved.

Alex Ferguson Commissioner

Oil and Gas Commission

DATED AT the City of Victoria, in the Province of British Columbia, this // day of January 2011.

IN THE MATTER of an application from KXL Energy Ltd. to the Commission dated June 30, 2010 for Other Than Normal Spacing.

### ORDER 11-07-002-OTN

1 Under Section 65.1(2) of the *Petroleum and Natural Gas Act*, Other Than Normal Spacing is approved within the Boundary Lake field Halfway "M" oil pool within the following area;

DLS Twn 86 Rge 13 W6M - NW/4 Fractional Section 16

DLS Twn 86 Rge 13 W6M - NE/4 Section 17

DLS Twn 86 Rge 13 W6M - Section 20

DLS Twn 86 Rge 13 W6M – W/2 Fractional Section 21.

- 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.

Richard Slocomb

Supervisor, Reservoir Engineering

Oil and Gas Commission

DATED AT the City of Victoria, in the Province of British Columbia, this // day of January 2011.

#### RATIONAL FOR ORDER

Orders 11-07-001 and 11-07-002 have been made considering:

➤ Conservation of the resource – KXL applied for GEP, Concurrent Production and Waiver of Gas Allowables for the Boundary Lake Halfway "K" and "M" pools on June 30, 2010. Shortly after posting the application on the OGC for Public Notice, KXL was informed that their application did not contain all of the required Letters of Consent for the entire application area. After several months of waiting for consents, KXL eventually agreed to reduced the application area based on the Letters of Consent it had received and omitting the lands where consent was not received. Also, after numerous conversations with Gordon Thompson, the submitter of the application, KXL amended their application and requested that a GOR limit of 900 m3/m3 be applied to both fields instead of the original request of Waiver of Gas Allowables.

The Halfway "K" and "M" pools are both mapped straddling the BC/AB border. While data contained in IRIS only represents the reserves for the BC portion of the Halfway "K" and "M" pools, the Alberta data for both pools was calculated and evaluation was done on a pool basis for both pools. Also, wells within both pools situated in Alberta have had either Good Production Practice, Gas-Oil Ratio Penalty Relief, or Concurrent Production approval granted by the ERCB so gas production is not restricted. A Holding for 2 oil wells per section has also been approved by the ERCB for the locations in Alberta.

KXL mentions in the application that complex geology and variable permeability would render secondary recovery methods ineffective. KXL interprets the upper Halfway would act as a "thief zone" resulting in early water breakthroughs and low sweep efficiencies.

KXL requested an Oil Allowable of 147.4 m3/d total for both pools based on the summation of the individual well Daily Oil Allowables granted for the individual wells in the respective pools. The requested Oil Allowables work out to 90.9 m3/d for the Halfway "K" and 56.5 m3/d for the Halfway "M" respectively.

For the BC Production Allowable Reports submitted to the OGC by KXL, besides the 4-16 well in the Halfway "K" pool, wells are currently producing at 36-65% of capability due to GOR penalty restrictions, hence the purpose of KXL's application. Applying the field based Oil Allowables and doubling the GOR Penalty factor to 355 m3/m3 would result in a daily gas limit of 32 e3 m3/d for the "K" pool and 20 e3 m3/d for the "M" pool.

In summary, approving pool specific Oil Allowables and increasing gas limits will help increase the productive capabilities of both pools without significantly sacrificing potential oil and gas reserves.

Application Area – KXL's original application area was:

Sections W4, 5, 8, W9, W16, 17, 20, W21 of 86-13W6M.

The application area was reduced to the current approval areas (for both the Halfway "K" and "M" pools) based on Letters of Consent received from mineral interest holders within the area of approval.

➤ **P&NG rights** – within the project area, based on tenure information and letters of nonobjection, the Commission is satisfied that KXL and their partners have appropriate rights in the subject formations and project area.

Objections – There were no objections to this project filed with the Commission.

Alex Ferguson

Commissioner

Oil and Gas Commission

January 1 . 2010