



March 28, 2011

7400-4900-59240-09

Darcy L. Spratt, R.E.T.
Senior Exploitation Technologist
Terra Energy Corp.
Suite 970, 333 – 7th Avenue S.W.
CALGARY, AB T2P 2Z1

Dear Mr. Spratt:

**RE: PRESSURE MAINTENANCE WATERFLOOD ORDER, AMENDMENT #2
OTHER THAN NORMAL SPACING ORDER, AMENDMENT #2
RED CREEK– DOIG “C” POOL**

The BC Oil and Gas Commission (Commission) has reviewed your application dated January 17, 2011, requesting an amendment to the pressure maintenance waterflood order previously granted for the Red Creek - Doig “C” oil pool. Pool performance indicates a favorable response since injection commenced in May 2001. A recent study by United Oil & Gas Consultants suggests changes to producer/injector placement in the reservoir to improve sweep efficiency.

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) Order 00-09-003 (Amendment #2) designating Pressure Maintenance Waterflood, within the Red Creek - Doig “C” pool as a Special Project under section 75 of the *Oil and Gas Activities Act*, and
- 2) Order 00-09-003-OTN (Amendment #2) approving Other Than Normal Spacing under section 65.1 of the *Petroleum and Natural Gas Act* for the subject formation and area.

These amendments incorporate the conversion of two oil wells to water injection wells, TERRA HZ RED 04-10-085-21 (WA #10790) and TERRA HZ RED C04-10-085-21 (WA #11389) for improved sweep efficiency. Two previous water injectors will be converted to oil producers TERRA HZ RED A13-03-085-21 (WA #11563) and TERRA HZ RED B13-03-085-21 (WA #11564).

Please note that, as per section 75 of the *Drilling and Production Regulation*, a record of the volume of water injected must be included on a Monthly Injection or Disposal Statement (BC-S18), which must be submitted to the Commission no later than the 25th day of the month in which activity occurred. Also, the operation of the pressure maintenance waterflood project will be subject to periodic review and the Commission may modify the Orders, if deemed appropriate.

Should you have any questions, please contact Richard Slocomb at (250) 419-4421 or Kelly Okuszko at (250) 419-4433.

Sincerely,

Alex Ferguson
Commissioner
Oil and Gas Commission

Attachments

IN THE MATTER of an amendment application from Terra Energy Corp. (Terra) to the Commission dated January 17, 2011 for the development and production of petroleum in the Red Creek – Doig “C” pool.

ORDER 00-09-003 (Amendment #2)

- 1 Under Section 75(1)(a) of the *Oil and Gas Activities Act*, the Red Creek – Doig “C” pool is designated as a special project for pressure maintenance for recovery of oil by water injection within the following area;

DLS 85-21 W6M Sections 3W, 4E, 9NW, 9E, 10W

- 2 Under section 75(2) of the *Oil and Gas Activities Act*, I specify the following:

- a) The project daily oil allowable is 418.4 m³.
- b) Water may be injected into the Red Creek - Doig “C” pool through the wells TERRA HZ RED A11-10-085-21 (WA #11068), TERRA HZ RED 04-10-085-21 (WA #10790) and TERRA HZ RED C04-10-085-21 (WA #11389).
- c) All associated produced gas must be conserved.
- d) The injection pressure measured at the sandface must not exceed the formation fracture pressure.
- e) The permit holder must submit a Progress report to the Commission for each twelve month period the project is in operation. The Progress report must be filed within 60 days after the end of each period and must contain the following:
 - i) the daily average rate during each month of oil production for each producing well, and for the project as a whole
 - ii) the average gas-oil and water-oil rates during each month for each producing well, and for the project as a whole
 - iii) the monthly cumulative gas, oil and water production for each producing well, and for the project as a whole
 - iv) for each type of fluid being injected, the daily average rate of injection per operating day during each month into each injection well, and for the project as a whole
 - v) for each type of fluid being injected, the weighted average wellhead injection pressure during each month for each injection well, and for the project as a whole
 - vi) for each type of fluid being injected, the monthly cumulative volume of fluid injected to each injection well, and for the project as a whole
 - vii) the current volumetrically weighted formation pressure for the project as a whole and a copy of the isobaric map from which this pressure was calculated
 - viii) the date and type of any well treatment or workover which must be indicated, in the case of injection wells, on the report of the injected volume, and in the case of producing wells, on the report of the daily average oil production rate
 - ix) calculations of the balance during each month between fluids injected into, and fluids withdrawn from, the part of the pool subject to the project and by individual patterns, where applicable

- x) an outline of the method actually in use for the quality control and treatment of fluid being injected, or, where there has been no change in the control or treatment from that outlined in a previous report, a statement to that effect

A handwritten signature in black ink, appearing to read 'Alex Ferguson', is written over a horizontal line.

Alex Ferguson
Commissioner
Oil and Gas Commission

DATED AT the City of Victoria, in the Province of British Columbia, this 28th day of March 2011.

IN THE MATTER of Other Than Normal Spacing within the Red Creek Doig "C" pool as described in the amendment application from Terra Energy Corp. (Terra) to the Commission dated January 17, 2011.

ORDER 00-09-003-OTN (Amendment #2)

1 Under Section 65.1(2) of the *Petroleum and Natural Gas Act*, Other Than Normal Spacing within the Red Creek – Doig "C" pool is hereby approved within the following area;

DLS 85-21 W6M Sections 3W, 4E, 9NW, 9E, 10W

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 28 day of March 2011.