



July 11, 2012

4650-2600-59240-09

Barry Bowden
Sr. Exploitation Engineer
Harvest Operations Corp.
2100, 330 – 5th Avenue S.W.
CALGARY, AB T2P 0L4

Dear Mr. Bowden:

**RE: PRESSURE MAINTENANCE WATERFLOOD ORDER, AMENDMENT #8
OTHER THAN NORMAL SPACING ORDER, AMENDMENT #8
HAY RIVER– BLUESKY “A” POOL**

The BC Oil and Gas Commission (Commission) has reviewed your applications dated April 17 and May 22, 2012 requesting amendments to the pressure maintenance waterflood order previously granted for the Hay River - Bluesky “A” & “B” oil pools, now mapped as the single Bluesky “A” pool.

The following Orders are attached;

- 1) Order 00-09-001 (Amendment #8) designating Pressure Maintenance Waterflood, within the Hay River - Bluesky “A” pool as a Special Project under section 75 of the *Oil and Gas Activities Act*, and
- 2) Order 00-09-001-OTN (Amendment #8) approving Other Than Normal Spacing under section 65.1 of the *Petroleum and Natural Gas Act* for the subject formation and area.


This amendment includes the areas requested by Harvest for gas cap lands as well as additional development land, excluding requested units 1-3 of Block H 94-I-9 and units 91-93 of Block A/94-I-9.

The approval for the Wascana Gas Cap Project, Order 99-06-011 Amendment #1, issued December 15, 2005, is hereby rescinded, with gas production conditions incorporated within the attached Order 00-09-001 Amendment #8.

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 Ron Stefik at (250) 419-4430 or Curtis Kitchen at (250) 419-4443.

Sincerely,



Richard Slocomb, P.Eng
Deputy Commissioner
Oil and Gas Commission

Attachments

IN THE MATTER of an amendment application from Harvest Operations Corp. (Harvest) to the Commission dated April 17, 2012 for the development and production of petroleum in the Hay River – Bluesky “A” pool.

ORDER 00-09-001 (Amendment #8)

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

NTS 94-I-9:

Block A – units 94-100

Block B – unit 91-99

Block G – units 1-9, 11-19, 21-29, 31-39, 41-49, 51-100

Block H – units 4-100

Block I – units 1-37, 41-47, 51-57, 61-67, 71-77, 81-87

Block J – units 1-5, 11 and 21.

- 2 Under section 75(2) of the *Oil and Gas Activities Act*, I specify the following:
- a) The reserves based project daily oil allowable is 1,696.0 m³.
 - b) All associated produced gas must be conserved.
 - i) A maximum of 90 e³m³/d of gas may be used for temporary electrical generation.
 - ii) Excess solution gas may be re-injected into the Bluesky “A” pool gas-cap through the wells a-13-I/94-I-9 (WA# 12425) or a-26-I/94-I-9 (WA# 11184).
 - c) Injection pressure measured at the water injector wellheads must not exceed 5,000 kPa.
 - d) 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

ORDER 00-09-001 (Amendment #8)

- 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



Richard Slocomb, P.Eng
Deputy Commissioner
Oil and Gas Commission

DATED AT the City of Victoria, in the Province of British Columbia, this ¹⁴11 day of July 2012.

IN THE MATTER of Other Than Normal Spacing within the Hay River – Bluesky “A” pool as described in the amendment application from Harvest Operations Corp. (Harvest) to the Commission dated April 17, 2012.

ORDER 00-09-001 OTN (Amendment #8)

- 1 Under Section 65.1(2) of the *Petroleum and Natural Gas Act*, Other Than Normal Spacing within the Hay River – Bluesky “A” pool is hereby approved within the following area;

NTS 94-I-9:

Block A – units 94-100

Block B – unit 91-99

Block G – units 1-9, 11-19, 21-29, 31-39, 41-49, 51-100

Block H – units 4-100

Block I – units 1-37, 41-47, 51-57, 61-67, 71-77, 81-87

Block J – units 1-5, 11 and 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.



Ron Stefik, EngL
A/Supervisor Reservoir Engineering
Oil and Gas Commission

DATED AT the City of Victoria, in the Province of British Columbia, this 11th day of July 2012