



March 12, 2020

5860-4545-59240-09

Glen Johnson, P.Geol.
Venturion Oil Limited
1600, 500 – 4th Ave S.W.
Calgary, AB T2P 3V6

Dear Mr. Johnson:

**RE: PRESSURE MAINTENANCE WATERFLOOD SPECIAL PROJECT, AMENDMENT #4
OTHER THAN NORMAL SPACING ORDER, AMENDMENT #4
MICA FIELD – MICA “A” POOL**

The Commission has reviewed the application dated December 19th, 2019 requesting amendment of the waterflood approval for the Mica field – Mica ‘A’ pool by adding an additional water injector, well Venturion Mica A11-34-81-14 (WA 23409) to the pool. This well was an approved gas injection well with the ability to temporally re-inject gas due to the lack of firm gas service. In December 2018, observation well status was granted.

The following Orders are attached;

- 1) Order 12-09-001 Amendment #4 designating Pressure Maintenance Waterflood within the Mica field – Mica ‘A’ pool, as a Special Project under section 75 of the *Oil and Gas Activities Act*, and
- 2) Order 12-09-001 Amendment #4 - OTN approving Other Than Normal Spacing under section 65.1 of the *Petroleum and Natural Gas Act* for the subject area and formation.

This approval includes recognition of three injectors, two of which, wells Venturion HZ Mica B14-27-081-14 (WA 30891) and Venturion Mica A11-34-081-14 (WA 23409) may be used for water injection with the flexibility of temporarily re-injecting gas, due to lack of firm gas service, to continue producing oil from the pool. Reservoir simulation showed that the addition of well A11-34 as a water injector to the pool will provide enhanced sweep efficiency and pressure support to increase recovery and preserve reservoir energy.

This amended approval includes a maximum wellhead injection pressure (MWHIP), an ultimate pool pressure limit, restriction of injection for the purpose of oil recovery, and a requirement for biannual reservoir pressure tests.

Please note that, as per section 75 of the *Drilling and Production Regulation*, a record of the volume of water injected and the MWHIP must be included on a Monthly Injection statement to the Commission via Petrinex not later than 20th day of the month following the reported month. Each time well B14-27 or A11-34 switches from water to gas injection or vice versa, the well status has to be changed in Petrinex. Gas injection volumes during a month are applied as a gas credit for the calculation of the following month daily oil allowable FGOR factor. However, all gas produced must be reported via Petrinex.

Should you have any questions, please contact Petra Kriescher-Trudgeon at (250) 419-4415 or the undersigned at (250) 419-4430.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Ron Stefik', is written over a horizontal line.

Ron Stefik, Eng.L.
Supervisor, Reservoir Engineering
Oil and Gas Commission

Attachments

IN THE MATTER of an application from Venturion Oil Limited to the Commission dated December 19th, 2019 for the production of oil using pressure maintenance (water injection).

ORDER 12-09-001 AMENDMENT #4

1. Under Section 65.1(2) of the *Petroleum and Natural Gas Act*, Other Than Normal Spacing is approved within the Mica field – Mica “A” pool within the following area;

DLS Twp 81 Rge 14 W6M N/2 Section 27, Section 28, N/2 & SE/4 Section 33,
Section 34, and SW/4 Section 35.

DLS Twp 82 Rge 14 W6M SW/4 Section 3, Sections 4, 5, 7, 8, W/2 Section 9
and Sections 17 and 18.

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

- a) The project unadjusted daily oil allowable (UDOA) is 511.0 m³/d.
- b) All associated produced gas must be conserved.
- c) Water may be injected into the wells:

Well Permit #	Well Name	Interval
30891	Venturion HZ Mica B14-27-081-14	1618.6 – 4140.0 mKB
31837	Venturion Mica C13-04-082-14	1672.0 – 4064.0 mKB
23409	Venturion Mica A11-34-081-14	1521.5 – 1525.0 mKB

- i) Inject only through tubing with a packer set as near as is practical above the injection interval.
 - ii) Not exceed an injection pressure, measured at the wellhead of 18,800 kPa or the pressure required to fracture the formation, whichever is lesser.
- d) Gas may be injected into wells:


Well Permit #	Well Name	Interval
30891	Venturion HZ Mica B14-27-081-14	1618.6 – 4140.0 mKB
23409	Venturion Mica A11-34-081-14	1521.5 – 1525.0 mKB

- i) Inject only through tubing with a packer set as near as is practical above the injection interval.
 - ii) Not exceed an injection pressure, measured at the wellhead of 20,700 kPa or the pressure required to fracture the formation, whichever is lesser.
- e) Not exceed an average pool pressure of 14,900 kPa measured at 873 meters subsea.

- f) At least once every two calendar years, perform a reservoir pressure test on this pool and submit results to the Commission via e-submission within 60 days of completion of the test.
- g) Cease injection for wells listed in (c) and (d) and notify the Commission immediately if there are any indications that hydraulic isolation is lost in the wellbore or formation
- h) Include the monthly injected volume, injection hours and the maximum injection pressure value for the well listed in (c) via Petrinex
- i) Injection must cease upon termination of production from the pool.
- j) The permit holder must submit a Progress Report to the Commission for each 12 month period the project is in operation. The Progress Report must be filed by March 31st the following year and must contain the information specified in Pressure Maintenance Progress Report Requirements.

Advisory Guidance for Order 12-09-001 AMENDMENT #4

- I. A production packer must be set above the injection interval and the space between the tubing and casing filled with corrosion and frost inhibiting fluids, as per section 16(2) of the Drilling and Production Regulation.
- II. Annual packer isolation tests are required to be completed and submitted, as per section 16(3) of the Drilling and Production Regulation.
- III. Injected fluids must be metered and the injection pressure measured at the wellhead, as per section 74 of the Drilling and Production Regulation.
- IV. A monthly injection statement must be submitted to the Commission not later than the 25th day of the month following the reported month, as per section 75 of the Drilling and Production Regulation.
- V. Seismic events must be reported and disposal operations suspended as per section 21.1 of the Drilling and Production Regulation.



Ron Stefik, Eng.L.
Supervisor, Reservoir Engineering
Oil and Gas Commission

DATED AT the City of Victoria, in the Province of British Columbia, this 12th day of March 2020.

IN THE MATTER of an application from Venturion Oil Limited to the Oil and Gas Commission dated December 19th, 2019 for Other Than Normal Spacing.

ORDER 12-09-001 AMENDMENT #4 - OTN

- 1 Under Section 65.1(2) of the *Petroleum and Natural Gas Act*, Other Than Normal Spacing is approved within the Mica field – Mica "A" pool within the following area;

DLS Twp 81 Rge 14 W6M N/2 Section 27, Section 28, N/2 & SE/4 Section 33, Section 34, and SW/4 Section 35.

DLS Twp 82 Rge 14 W6M SW/4 Section 3, Sections 4, 5, 7, 8, W/2 Section 9 and Sections 17 and 18.

- 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 target area specified in paragraph (a) 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, Eng.L.
Supervisor, Reservoir Engineering
Oil and Gas Commission

DATED AT the City of Victoria, in the Province of British Columbia, this 12th day of March 2020.