

July 19, 2019

6460-4520-59240-09

John Slofstra
Manager Operations
Tallahassee Exploration Inc.
1910, 401 9th Ave SW
Calgary, AB T2P 3C5

Dear Mr. Slofstra:

RE: PRESSURE MAINTENANCE WATERFLOOD ORDER 97-09-004 AMENDMENT #4
OAK FIELD – CECIL “I” Pool

The Commission is presently reviewing and amending waterflood approvals to conform to current requirements. The re-activation of the Oak field Cecil ‘I’ pool by Tallahassee Exploration Inc. required this review.

The Oak field Cecil “I” oil pool commenced production in July 1994. A waterflood pressure maintenance project was approved in Feb 1995 with injection starting in August 1998. The pool ceased injection and production in Aug 2017 and September 2017, respectively. A review of reservoir performance indicates that the waterflood was successful in stabilizing the GOR, achieving a cumulative voidage replacement ratio of 0.95. The Commission is concerned regarding the lack of current reservoir pressures in the vicinity of the injector. Good reservoir management requires a limit on the ultimate reservoir pressure at the cessation of pool operation, with consideration of demonstrated potential for pool pressure equalization.

Prior to converting well TEI et al Oak 5-28-086-17 (WA # 16684) to injection service in January 2004 a reservoir pressure was taken and showed a pressure of 4,737 kPa, well below the initial reservoir pressure. Due to the lack of additional pressures, the Commission requires that Tallahassee obtain a stable reservoir pressure prior to reactivating the injector to verify the current reservoir pressure.

The following Orders are attached;

- 1) Order 97-09-004 Amendment #4 designating Pressure Maintenance Waterflood within the Oak field – Cecil “I” pool, as a Special Project under section 75 of the *Oil and Gas Activities Act*, and
- 2) Order 97-09-004 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 amended approval includes a maximum wellhead injection pressure (MWHIP), an ultimate pool pressure limit, restriction of injection for the purpose of oil recovery, the submission of a packer isolation test and a static gradient test pressure. Also included is a requirement for an annual reservoir pressure tests on the injector. This approval will be re-evaluated upon review of the requested pressure test.

All injection wells, other than the currently active well TEI et al Oak 5-28-086-17 (WA# 16684), are no longer included in the Order as approved for injection service. Request may be made for reactivation of other former injection wells if required.

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.

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

Sincerely,



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

Attachments



ORDER 97-09-004 – Amendment #4

1. Under Section 75 (1) (a) of the *Oil and Gas Activities Act*, the Commission designates by Order the development and production of petroleum and natural gas from a pool using pressure maintenance waterflood enhance recovery scheme within the Oak field – Cecil “I” pool following area;

DLS Twp 86 Rge 17 W6M NE/4 Sect. 17, E/2 & SW/4 Sect. 20, W/2 Sect. 21, Sect. 28, E/2 Sect., 29 and Sect. 33.

2. Under section 75(2) of the *Oil and Gas Activities Act*, the special project designation in this Order is subject to the following conditions:
 - a) The project unadjusted daily oil allowable (UDOAs) is 100.0 m³/d.
 - b) All associated produced gas must be conserved.
 - c) Water may be injected into the injection well TEI et al Oak 5-28-86-17 W6M (WA 16684), interval 1214.3.0 – 1216.3 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 15,700 kPa or the pressure required to fracture the formation, whichever is lesser.
 - d) Prior to injection start and then yearly thereafter a reservoir pressure must be obtained from the injector TEI et al Oak 5-28-86-17 W6M (WA 16684), and submitted to the Commission within 60 days via e-submission
 - e) Not exceed an average pool pressure of 12,031 kPa measured at 535.0 meters subsea for well TEI et al Oak 5-28-86-17 W6M (WA 16684).
 - f) Cease injection for the well listed in (c) and notify the Commission immediately if hydraulic isolation is lost in the wellbore or formation
 - g) Submit the annual packer isolation test report for the well listed in (c) to the Commission within 30 days of the completion of the test.
 - h) Include the injected volume, injection hours and the maximum injection pressure value for the well listed in (c) on the monthly via Petrinex.
 - i) Injection must cease upon termination of production from the pool.

Advisory Guidance for Order 97-09-004 – 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 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 19th day of July 2019.



ORDER 97-09-004 Amendment #4 - OTN

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

DLS Twp 86 Rge 17 W6M NE/4 Sect. 17, E/2 & SW/4 Sect. 20, W/2 Sect. 21, Sect.
28, E/2Sect., 29 and Sect. 33.

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.

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

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

DATED AT the City of Victoria, in the Province of British Columbia, this 19th day of July 2019.