

CONCURRENT PRODUCTION APPLICATION GUIDELINE

BACKGROUND

Concurrent production is the controlled, simultaneous production of an oil accumulation and its associated gas cap. Concurrent production may typically be approved for “gassy” oil pools, without defined gas cap wells, where the producing gas-oil ratio significantly exceeds the solution gas-oil ratio.

Maximizing pool oil recovery is of primary importance. In primary depletion, this is achieved by limiting pool gas production to conserve reservoir energy. Oil wells are subject to the conservation and equity control mechanism of daily oil allowable (DOA) production restriction. The DOA is limited by a monthly gas/oil ratio adjustment factor (FGOR), derived from oil and gas production volumes of the previous producing month. An FGOR of less than 1.00 occurs when the producing GOR exceeds a provincial base value of 177.3 m³/m³. Additional information on Daily Oil Allowables can be found on the Regulator’s website [Production Allowables page](#).

In some cases the FGOR may severely restrict production, to a sub-economic value, without benefiting pool ultimate recovery. A permit holder may apply for a Concurrent Production Approval to remove the FGOR where;

- best completion practices have been used, perforating low in the oil column.
- the producing GOR is shown not to be rate sensitive.
- the pool is unsuited for secondary oil recovery.
- gas production is or will be conserved.

A Concurrent Production Approval may be subject to;

- a project DOA (FGOR waived) where pool competitive equity is a concern, and/or
- a daily gas production limit (DGL), to preclude future completion/production of gas cap pay and to foster preferential production from lower gas rate wells in the project.
- conservation of gas production.

NOTE: Unlike a daily gas allowable, subject to a defined “daily production limit” of 125% of the DGA value, the DGL condition of a Concurrent Production Approval is a “hard rate” ceiling limit.

It is occasionally necessary to rescind a Concurrent Production approval, under such circumstances as:

- New lower GOR oil well drilled into the pool, oil leg re-mapped as larger volume than initially estimated. GEP may be granted with a project DOA subject to FGOR adjustment, or wells revert to individual well daily oil allowables.
- All wells in the pool are re-classified from oil to gas (very rare).
- Uncontrolled blowdown of gas cap approved, rate restrictions removed.
- Initiation of a new project, such as gas or water injection pressure maintenance.
- All wells in the pool abandoned.

APPLICATION

An application for Concurrent Production of oil and gas, as a Special Project under Section 75 of the *Energy Resource Activities Act* should contain, when applicable:

- A legal description of the area and designation of the pool for which the application is made

Maps

- A map of the scheme area, together with the title holders within this area and in adjacent title-holdings
- A map of the status and completion zone for all wells within 3 kilometers of the area

Geology and Reservoir (Include Well Permit (WA) numbers)

- A discussion of the geology of the pool, including relevant cross-sections or fence diagrams, together with contour maps showing structure on top of the formation and top and base of porosity
- A discussion of the reservoir rock properties, including isopach maps of net pay, together with details of the estimations of average net pay, porosity, permeability, water saturation and fluid-interface elevations. Net pay values should be based on cut-offs accepted by the BC Energy Regulator after discussion with the operator.
- A general discussion of the history and development of the pool for which the scheme is proposed, including a tabulation of completion details, initial potential and latest test data for all wells completed in the pool
- Graphs of production histories for all wells in the pool, showing production rates and cumulative volumes, together with appropriate gas-oil and water-oil ratios. Graphs for representative wells may be presented when the number of wells is large.
- A discussion of the reservoir fluid properties, such as saturation pressure, oil API, oil and gas formation volume factors, solution GOR, oil and gas viscosities, solution gas-oil ratio, and relevant fluid analyses. Details of the variation of these properties with pressure should be included.
- An estimate of the volume of hydrocarbons originally in place in the pool
- Details of any compositional and volumetric material-balance calculations

Development

- A discussion of the proposed method of producing the pool and conserving gas, including a prediction of the rate-time performance and ultimate recovery of oil and gas.
- A discussion of the effects of the proposed production method on the rates of pressure depletion in the oil and gas-bearing sections of the reservoir.
- A discussion of the feasibility of alternative methods for producing the pool, such as pressure maintenance or enhanced oil-recovery schemes, and continued production under existing conditions. Predictions of rate-time performance and ultimate recovery should be included for at least the continued production case.
- A request for approval of proposed oil and gas production limits.

Letters

- Written statements from other interested parties, indicating their reaction to the application. Examples of such statements are provided here [Consent to Inclusion in a Reservoir Project](#) or here [No Objection to Reservoir Project](#).

The application should be submitted to the Supervisor of the Reservoir Engineering Department of the BC Energy Regulator in Victoria via email at Reservoir@bc-er.ca. Additional copies may be made available to owners directly affected, upon request. Notice of an application may be published on the Regulator's website.