



Good Engineering Practice (GEP) – Summary Information

VERSION 1.1: December 2023

About the Regulator

The BC Energy Regulator (Regulator or BCER) is the single-window regulatory agency with responsibilities for regulating oil and gas activities in British Columbia, including exploration, development, pipeline transportation and reclamation.



The Regulator's core roles include reviewing and assessing applications for industry activity, consulting with First Nations, ensuring industry complies with provincial legislation and cooperating with partner agencies. The public interest is protected by ensuring public safety, protecting the environment, conserving petroleum resources and ensuring equitable participation in production.

Vision, Mission and Values

Vision

A resilient energy future where B.C.'s energy resource activities are safe, environmentally leading and socially responsible.

Mission

We regulate the life cycle of energy resource activities in B.C., from site planning to restoration, ensuring activities are undertaken in a manner that:



Protects public safety and the environment



Supports reconciliation with Indigenous peoples and the transition to low-carbon energy



Conserves energy resources



Fosters a sound economy and social well-being



Values

Respect is our commitment to listen, accept and value diverse perspectives.

Integrity is our commitment to the principles of fairness, trust and accountability.

Transparency is our commitment to be open and provide clear information on decisions, operations and actions.

Innovation is our commitment to learn, adapt, act and grow.

Responsiveness is our commitment to listening and timely and meaningful action.

Additional Guidance

As with all Regulator documents, this document does not take the place of applicable legislation. Readers are encouraged to become familiar with the acts and regulations and seek direction from Regulator staff for clarification.

The Regulator publishes both application and operations manuals and guides. The application manual provides guidance to applicants in preparing and applying for permits and the regulatory requirements in the planning and application stages. The operation manual details the reporting, compliance and regulatory obligations of the permit holder. Regulator manuals focus on requirements and processes associated with the Regulator's legislative authorities. Some activities may require additional requirements and approvals from other regulators or create obligations under other statutes. It is the applicant and permit holder's responsibility to know and uphold all legal obligations and responsibilities. For example, Federal Fisheries Act, Transportation Act, Highway Act, Workers Compensation Act and Wildlife Act.

Throughout the document there are references to guides, forms, tables and definitions to assist in creating and submitting all required information. Additional resources include:

- [Glossary and acronym listing](#) on the Regulator website.
- [Documentation and guidelines](#) on the Regulator website.
- [Frequently asked questions](#) on the Regulator website.
- [Advisories, bulletins, reports and directives](#) on the Regulator website.
- [Regulations and Acts](#) listed on the Regulator website.

In addition, this document may reference some application types and forms to be submitted outside of the Application Management System but made available on the Regulator's website. Application types and forms include:

- Heritage Conservation Act, Section 12
- Road use permits
- Water licences
- Master licence to cut
- Certificate of restoration
- Waste discharge permit
- Experimental scheme application
- Permit extension application

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Document Revisions

The Regulator is committed to the continuous improvement of its documentation. Revisions to the documentation are highlighted in this section and are posted to the [Energy Professionals](#) section of the Regulator's website. Stakeholders are invited to provide input or feedback on BCER documentation to servicedesk@bc-er.ca or submit feedback using the [feedback form](#).

Version Number	Posted Date	Effective Date	Chapter Section	Summary of Revision(s)
1.0	March 9, 2021	April 1, 2021	Various	This is a new document. Users are encouraged to review in full.
1.1	Dec. 12, 2023	Dec. 12, 2023	Various	Replace BCOGC with BCER; OGAA with ERAA; new logos, references and associations

Introduction

GEP (Good Engineering Practice) approval is a method to modify both well spacing and target area restrictions, for gas or oil pool development. For oil pools, a single project production limit (Daily oil Allowable & Daily Gas Limit) replaces individual well production limits.

Section 75 of the Energy Resource Activities Act enables the BCER to approve a Special Project for the operation of wells under GEP. Commonly referred to as a project, the approval may be issued for either gas or oil and is formation/pool specific within a defined area. GEP approvals are only issued following receipt of an application from the operator. As the name implies, the operator of the project is granted latitude to develop a pool in a responsible manner using engineering principles that will ultimately result in maximum recovery of the resource.

Both a GEP Order and an Other than Normal Spacing (OTN) Order are issued with a GEP approval. Section 65.1 of the Petroleum and Natural Gas Act enables the Regulator to approve other than normal well spacing. The wording of Section 75 allows consideration of potentially unique circumstances when crafting conditions of an approval. Presently, the most common reason for application is to permit “downspacing” of gas or oil wells to improve reservoir drainage.

Over 370 GEP approvals have been granted for a total area of over 3.3 million hectares. This is equivalent to approximately 34% of the entire prospective area of the Western Canadian Sedimentary Basin in north-east BC. However, the total footprint is smaller, as GEP approvals are formation specific with significant area overlaps.

An amendment to the Drilling and Production Regulation in 2012 created Schedule 2 Unconventional Zones, effectively removing the requirement for GEP approvals for development in several regional plays. The ‘Unconventional Resources’ section of this document provides further information.

Background

By regulation, normal spacing is one gas well per section, one oil well per quarter section. This standard was based on the average reservoir drainage area of a well. The target area is measured 250 metres within the boundaries of the gas spacing. The oil target area setback is 100 metres.

Prior to de-regulation of the natural gas industry in the late 1980’s, all gas wells were restricted by an individual Daily Gas Allowable (DGA). In most cases the DGA was an equity tool, with no conservation impact. The allowable “divided the pie”, so that each well in a pool received a share of production proportionate to the volumetric reserves within the well’s spacing area.

With the majority of pools being developed under normal well spacing, Good Engineering Practice approvals issued up to 1989 were often for the primary purpose of waiving individual well allowables. A single GEP project allowable could be produced from any one or combination of wells. When industry agreed on a “law of capture” approach to gas production, the need for individual well gas allowables was waived. That being said, gas allowables continue to be a requirement for issues of off-target production or resource conservation (gascap, active waterdrive, etc.).

Oil wells are restricted by a Daily Oil Allowable (DOA), primarily as a conservation tool. GEP in an oil pool allows selective production of lower gas-oil ratio wells under a project allowable, benefiting primary oil recovery.

To summarize, the historic use of GEPs was more of a production management tool rather than a means of altering well spacing and target restrictions.

Application Considerations

The GEP area must be composed of complete well spacing areas, however there is no limit to size, from a single spacing to hundreds of square kilometres. Discontinuous lands may be included in a single application, however a separate GEP approval is issued for each block of land inter-connected at a minimum by a diagonal corner. The application area must demonstrate evidence of continuous reservoir.

Approvals generally include a cover letter, a GEP approval Order, and an OTN approval Order. Both orders share a unique order number. The specific field/formation/pool is identified and the area clearly described as are the conditions of approval.

A standard condition in the OTN Order is the removal of normal well spacing and target restrictions. Wells may be drilled at any density, or orientation, but the completed portion of the wellbore must respect an outside buffer to avoid off-target penalty. The setback is normally 250 metres for gas and 100 metres for oil. **Internal off-target penalties do not apply.** Normal off-target production penalties do apply for wells along the GEP boundary. To date, the Regulator has not specified minimum inter-well distance requirements for subsurface completions; that discretion is left with the operator.

For a gas pool GEP, production allowables are normally waived. The Regulator does not normally limit the number of wells per spacing area within a GEP approval. However, for a gas GEP where equity concerns have been raised, a production limit may be imposed on lease-line spacing areas as a control mechanism. For oil pools, specific lease line wells may remain subject to individual production limits, within the overall project allowable.

GEP approval is not a pre-requirement for obtaining a well authorization where the objective zone is already producing in the spacing. A second well may be drilled, completed, or tested with gas flared. However, if both wells prove to be in the same pool GEP approval is required prior to commercial production.

GEP approval does not grant automatic precedent for the remaining portion of a pool or surrounding reservoirs. Variable reservoir quality in some formations has proven instances of a single well efficiently draining a complete gas spacing area, but with adjoining poorer quality rock that technically supports the requirement for increased density; for example, the Monias field Halfway formation.

GEP approval in no way circumvents the normal process for obtaining a well authorization.

Amendment

A GEP approval may be amended at any time. Expansion of area or modification to an allowable is a common request. Additions that are a minor fraction of the existing size, within title held at common interest to the GEP, may be approved following an internal BCER review; however, the majority of amendments will follow the online public notice process.

A GEP approval may be rescinded by the Regulator, in consultation with the operator, when no longer warranted. Operators are encouraged to be proactive in requesting the termination of approvals where wells are no longer productive.

GEP approvals transfer to a new operator in the event of an asset sale or corporate merger.

Unconventional Resources

Large areas of regional tight gas “resource plays” in the Jean Marie, Cadomin, and Montney formations were developed under GEP approvals, where applications, approvals or amendments are generally uncomplicated. As well performance and reservoir recovery expectations become evident in previously under-explored areas, the burden of proof required to obtain reduced spacing becomes lessened. Exceptions may still be encountered, such as wells that adequately drain one or more sections, where GEP approval would be detrimental to interests of equity and disturbance.

An amendment to the Drilling and Production Regulation in 2012 created Schedule 2 Unconventional Zones, with a removal of normal well spacing and target area restrictions, effectively removing the requirement for GEP approvals for development in such areas as the Horn River and Liard shale basins, and the Heritage and Northern Montney regional fields for the Montney formation. An exception to this rule is that if operators explore for the unconventional Montney formation outside of the currently defined regional fields for the Heritage and Northern Montney, a GEP application is required. The industry bulletin explaining these changes can be found [here](#).

Records

BCER letters and approvals in response to applications are sent by email, for ease of distribution. The Regulator uploads digital shape files of GEP project areas and pool maps in the [BC Energy Regulator Open Data Portal](#), for use in GIS applications. The Regulator website [Reservoir Management approvals library](#) contains records of all approvals issued. Also, a spreadsheet of approved projects is available in the [Data Centre](#) on the Regulator’s website.