

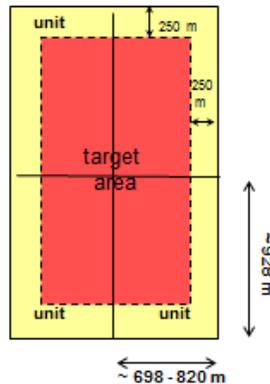
OTHER THAN NORMAL SPACING FOR WELLS GUIDELINE

Background

Normal well spacing areas are defined in Section 65 of the Petroleum and Natural Gas Act as;

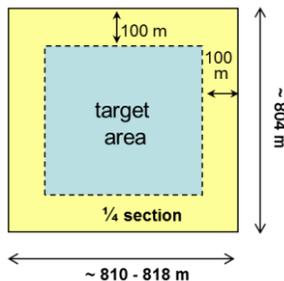
Gas well - four units in the National Topographic Survey (NTS) system or one section in the Dominion Land Survey (DLS) system. This approximates to 260 hectares. Note that the 4 units that constitute an NTS gas spacing area are predetermined, as described by section 65(1)(c) of the P&NG Act.

**One gas well per pool per
4 units (NTS) or,
1 section (DLS)**



Oil well - one unit in the NTS system or 1/4 section in the DLS system. This approximates to 65 hectares.

**One oil well per pool per
1 unit (NTS) or,
1/4 section (DLS)**



Section 65.1 of the Act provides opportunity to create Other Than Normal Spacing (OTNS) for oil or gas development. OTNS may either reduce or enlarge the spacing area to accommodate the specific circumstances. The approval may contain a condition which modifies the target area boundaries within the OTNS.

- **Reduction** to a fractional size has been rare. Subsurface rights tenure normally conforms to a minimum of a full spacing area. Proving no-flow boundaries, which contain well drainage to a very specific area, is difficult. Where the gas spacing area is composed of more than one Petroleum and Natural Gas Lease in the producing formation, a pooling agreement is required.
- **Enlargement** of the spacing area is the most common application of Other Than Normal Spacing, generally to accommodate horizontal drilling.

Where the completed interval of a well is located in more than one normal spacing area, an OTNS may be created that incorporates the two areas as a single spacing. This approval, to accommodate an individual well, then limits to a single producing well in the pool within the OTNS area. An application for OTNS for a single well will not normally be processed by BCER staff until the prospective well has been successfully completed, as experience has shown that actual wellbore trajectory and length may vary significantly from that planned.

The development of reservoir projects, such as Pressure Maintenance waterflood or gas injection and Good Engineering Practice (GEP), benefit from the removal of normal well spacing requirements over the area of the pool. Upon application for a Special Project (such as waterflood or GEP) under section 75 of the Energy Resource Activities Act, the Regulator will normally also issue an associated Order under section 65 of the Petroleum and Natural Gas Act which removes spacing and target area considerations for the specific area and formation.

The Regulator recognizes that the efficient development of **unconventional resources**, shale and tight gas, entails the drilling and completion of horizontal wells without regard to normal well spacing. Listed as Schedule 2 in the Drilling and Production Regulation, areas and formations are defined **within which normal well spacing and target areas do not apply**, along with modified buffer distances for well completion distance to competitive rights.

Note: Along the boundary where the DLS survey system meets the NTS system and the provincial border with Alberta, OTNS for gas have been predetermined, fractional units and fractional sections added to the nearest full spacing area. For the description of specific location OTNS in these circumstances, Reservoir Engineering staff may be consulted.

Note: Where the NTS area abuts the provincial border with Alberta, the gas spacing is an OTNS of 6 units, the 2 additional units at the border combined with the normal gas spacing area directly to the west.

APPLICATION

An application for Other Than Normal Spacing under section 65.1, for an individual well, may contain, when applicable:

- A description of the area of application
- A map of the area of application
- A map showing title holders of the formation within and adjoining the area of application
- The name of the formation being applied for
- The surface and bottom-hole locations and coordinates of the well
- A schematic diagram of the well bore completion
- A general discussion of the need for other than normal spacing

The application should be submitted to the Supervisor of the Reservoir Engineering Department of the BC Energy Regulator 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.

As noted in the Background section of this document, a separate application for OTNS is **not required** if making application for a reservoir Special Project. The OTNS Order will be granted as a separate document accompanying, and numbered in association with, the Special Project Order.