
DEATH OF THE SPACING UNIT

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INTRODUCTION

Myth: Standard Spacing Units

Standard spacing units in the WSB are:

- $\frac{1}{4}$ section for an oil well; and
- full section for a gas well

INTRODUCTION

Myth 2: One Well Per Pool

Standard spacing in the WSB allows for one well per pool per spacing unit.

INTRODUCTION

- Until very recently I had always used the myths as the basic rule, to be modified based on limited exceptions.
- However, it now clear to me that perpetuating such myths is harmful in today's regulatory environment.

INTRODUCTION

- This is a reflection of the change in the nature of the wells being drilled in the WSB.
- In the old days, we were drilling vertical wells into a porous pool. The old rules work for these wells.
- Today, we are drilling tight formations of oil or gas where there is no porous pool and almost no drainage.

INTRODUCTION

- In this new world, the idea of one well per pool is silly.
- Inter-well spacing and set backs from tenure boundaries are all that is important.

INTRODUCTION

Alberta:

- Has chosen a **density drilling** concept to deal with this new reality.
- Does not yet fully deal with HZ wells in its regulations.

INTRODUCTION

Manitoba and Saskatchewan:

- Have chosen a **cigar** DSU concept to deal with this new reality.
- Fully incorporate HZ wells in its regulations.

INTRODUCTION

A Note of Caution:

- Notwithstanding the death of the spacing unit, you still require **common ownership** within your wellbore.
- So WI, GOR and tenure are still central to the licensing process and your common law rights and obligations.

INTRODUCTION

Today we will walk through the current spacing regulations for:

- Alberta;
- Saskatchewan; and
- Manitoba

With the main focus being on horizontal wells.

INTRODUCTION

After that, we will briefly consider some issues that can arise under this new spacing reality.

ALBERTA SPACING REGS

- So let's start with the boring regulatory stuff first.
- In all 3 provinces, the issue of spacing is a well licensing and well production matter.
- In AB, we look to the *Oil and Gas Conservations Rules, Part 4, Drilling Spacing Units and Target Areas (the "OGCR")*.

ALBERTA SPACING REGS

- In Alberta, "standard" spacing of one well per pool, with $\frac{1}{4}$ section oil and full section gas spacing still exists under section 4.010 of the OGCR.
- Subject to down spacing and holdings, which we will not discuss today. But remember, they still exist.

ALBERTA SPACING REGS

4.010(1) *The drilling spacing unit for a well is the **surface area** of the drilling spacing unit and*

(a) the subsurface vertically beneath that area, or

(b) where the drilling spacing unit is prescribed with respect to a specified pool, geological formation, member or zone, the pool, geological formation, member or zone vertically beneath that area.

ALBERTA SPACING REGS

4.010(3) *Unless the Regulator otherwise prescribes under section 4.040, the surface area of a drilling spacing unit for:*

(a) an oil well is one quarter section, or

(b) a gas well is one section.

ALBERTA SPACING REGS

- What? You just said that spacing units were dying.
- Liar.
- Relax, I said the spacing unit was dying, not dead.

ALBERTA SPACING REGS

- Standard spacing in Alberta is now increasingly subject to large area exceptions under the OGCR.
- These exceptions are the **density drilling** provisions.

ALBERTA SPACING REGS

Gas Wells

4.021(1) *Unless the Regulator otherwise prescribes under section 4.040, in a drilling spacing unit:*

(a) 2 gas wells may be produced from each gas pool with the exception of

(i) coalbed methane, including but not limited to those wells with interbedded lithologies sands, and shale gas reservoirs, where there is no prescribed number of wells that may be produced,

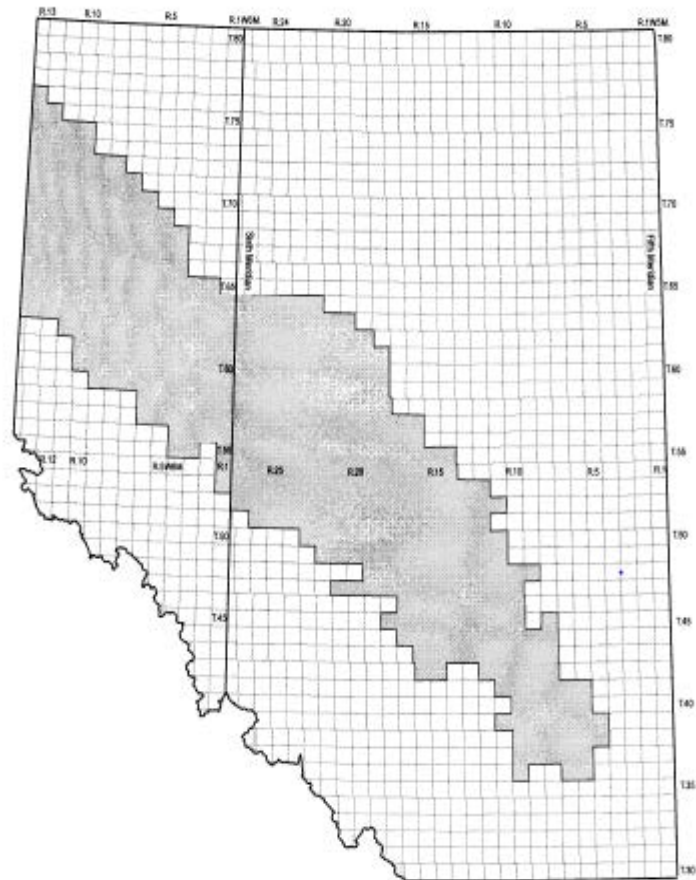
(ii) the area outlined in the map set out in Schedule 13A that is above the Mannville Group, where there is no prescribed number of wells that may be produced, and

(iii) the area outlined in the map set out in Schedule 13B that is in the designated strata and stratigraphic equivalents between the top of the Smoky Group to the base of the Rock Creek Member, where 4 wells may be produced from each gas pool in a drilling spacing unit, and

ALBERTA SPACING REGS

13B

Referred to in Section 4.021



AR 39/2010 s5

ALBERTA SPACING REGS

Oil Wells

4.021(1) *Unless the Regulator otherwise prescribes under section 4.040, in a drilling spacing unit:*

...

*(b) one oil well may be produced from each oil pool in a drilling spacing unit, except in the area outlined in the map set out in Schedule 13A that is in the **Mannville Group, where 2 wells may be produced from each oil pool in a drilling spacing unit.***

ALBERTA SPACING REGS

Common Ownership Required

- Notwithstanding the introduction of density drilling, you still must have common ownership through your DSU:

4.021(1) Unless the Regulator otherwise prescribes under section 4.040, in a drilling spacing unit: ...

*(2) No well shall be produced unless there is **common ownership** throughout the drilling spacing unit*

ALBERTA SPACING REGS

Horizontal Wells

- AB does not yet have custom horizontal well DSU regulations.
- HZ well concepts are actually not very significant under the OGCR.
- Very different than SK and MB, so I expect this will change, especially as we license HZ wells separately.

ALBERTA SPACING REGS

Horizontal Wells

- Rather, Directive 065 clarifies that the productive segment of the HZ well in each DSU is considered a wellbore in that DSU:

7.2.4 Spacing and Horizontal/Multilateral Wells

The productive part of a horizontal wellbore in each DSU is considered a wellbore for the purpose of Section 4.021(1) of the OGCR. The productive part of a wellbore is the portion open to the producing zone or formation/pool.

WELL SPACING, DENSITY, ETC.

- So, in AB we have standard DSUs, subject to the ever increasing density drilling provisions that allow for more than one well per pool.
- Under density drilling you can drill multiple wells per pool, subject to set back and inter-well spacing.
- I am pretty sure you don't need holdings for density drilling.

SASKATCHEWAN SPACING REGS

SK Horizontal Wells – No More SU

- In SK there were significant changes in 2012 to allow for HZ tight oil production.
- Old fashion spacing units only apply to vertical wells. No spacing units for HZ wells.

SASKATCHEWAN SPACING REGS

SK Horizontal Wells – No More SU

- This time we look to the *Oil and Gas Conservations Regulation, 2012, Part VI, Drainage Units, Target Areas and Qualifications for allowables (the "SK OGCR")*

SASKATCHEWAN SPACING REGS

SK Horizontal Wells – No More SU

- The SK OGCR specifically distinguishes between vertical and horizontal wells.
- Sections 31 to 35 now apply only to vertical wells.
- Sections 37 to 39 apply to horizontal wells.

SASKATCHEWAN SPACING REGS

Set-back distances

38 *Unless otherwise ordered by the minister pursuant to section 17 or 17.1 of the Act:*

*(a) for heavy oil areas **the productive horizontal section** of a horizontal well must be **set back**:*

(i) a minimum of 100 metres from a diversely owned lease boundary;

and

*(ii) 100 metres **from a productive vertical well or from the productive horizontal section of another horizontal well**;*

(b) for non-heavy oil areas:

(i) the entire productive horizontal section of a horizontal well must be set back a minimum of 100 metres from a diversely owned lease boundary; and

(ii) the productive horizontal section of a horizontal well must be set back a minimum of 150 metres from a productive vertical well or from the productive horizontal section of another horizontal well.

SASKATCHEWAN SPACING REGS

- Therefore, HZ wells are no longer subject to one well per pool. Rather, HZ wells are subject only to set back and inter-well distances.
- This creates a "cigar" outline around the productive horizontal segment that must always be considered for tenure ownership.

SASKATCHEWAN SPACING REGS

- In non-heavy oil areas:
 - the productive horizontal section must be 100 m from a "diversely owned lease boundary" (**set back**); and
 - And 50 m from a "productive vertical well" or "the productive horizontal section of another horizontal well" (**inter-well spacing**).

SASKATCHEWAN SPACING REGS

- In heavy oil areas:
 - the productive horizontal section must be 100 m from a "diversely owned lease boundary" (**set back**); and
 - And 100 m from a "productive vertical well" or "the productive horizontal section of another horizontal well" (**inter-well spacing**).

SASKATCHEWAN SPACING REGS

- Note the language regarding a "productive vertical well".
- If the vertical well is not productive - there is NO inter-well distance.

SASKATCHEWAN SPACING REGS

- I believe the rationale for the changes is that HZ wells are so tight that you really don't want or need to have a spacing unit concept.
- Rather, each well is considered its own drainage unit and only needs to meet set back and inter well distances.

SASKATCHEWAN SPACING REGS

- The death of the SU does not mean the death of common ownership and equitable production rules.
- In SK, you now apply for a "Horizontal Drainage Unit Application" with your "Horizontal Oil Well Application".
- Your drainage unit is based on Lsds and is established by Saskatchewan Ministry of the Economy ("SER").
- Both forms and directions are on the SER website.

SASKATCHEWAN SPACING REGS

- In order to obtain your HZ well license, you must provide evidence of the following with your application:
 - An agreement with freehold owners distributing production (should use a PAUA, but lots of companies do not); and
 - Consents from the Crown (standard form).

SASKATCHEWAN SPACING REGS

- The SER Horizontal Drainage Unit ("HDU") Application, refers to an Ultimate Drainage Area ("UDA") for the HZ well. The applicant is to list the applicable Lsds in the application, which is subject to SER approval.
- The good news is that the UDA granted under a HDU Application will be the drainage unit for the HZ well. Very clear set of Lsds listed to form the HDU.

SASKATCHEWAN SPACING REGS

- The bad news is that sometimes odd and interesting Lsds are included in the UDA by SER.
- Note – there is a very good SER PowerPoint presentation from 2012 that goes through the Horizontal Oil Well Application and Approval Process.

MANITOBA SPACING REGS

- Manitoba has the most straight forward "cigar" drainage unit concept for Hz oil wells.
- Clear inclusion of all Lsds in the cigar in the DSU.
- No one well per pool rule.

MANITOBA SPACING REGS

- The *Manitoba Crown Royalty and Incentives Regulation* defines a "drainage unit" as follows:

"drainage unit" means an area, determined by the director in accordance with this regulation, that:

(a) is allocated to a horizontal well for the purpose of producing oil and gas, and

(b) **consists of all spacing units located within 100 m of the completed interval of the horizontal well;**

MANITOBA SPACING REGS

- This drainage unit definition is adopted in the Manitoba *Drilling and Production Regulations* in Part 1 - Definitions.
- A standard definition for spacing unit is appears in the Manitoba *Oil and Gas Act* as follows:

"spacing unit" means the area allocated to a well for the purpose of producing oil and gas from a formation;

MANITOBA SPACING REGS

- Under Part 4 of the *Drilling and Production Regulations* the spacing unit for an oil well is a legal subdivision:

PART 4

Spacing Units, Target Areas and Off-Target Penalties

Standard size of spacing unit and target area 11 Subject to section 12:

- for the purpose of this regulation, a spacing unit of an oil well is a legal subdivision; and*
- the target area in the spacing unit is a square with sides 100 m from and parallel to the sides of the spacing unit.*

MANITOBA SPACING REGS

- Note - pursuant to section 13 of the *Drilling and Production Regulations*, an operator is not required to apply for a spacing unit variation order (i.e. a holding or spacing application) where a horizontal well drainage unit will penetrate or drain more than one spacing unit:

Horizontal well penetrating more than one spacing unit

13(1) An operator is not required to make an application under section 102 of the Act for the purpose of allowing a horizontal well to penetrate or drain more than one spacing unit.

MANITOBA SPACING REGS

- Rather, pursuant to subsection 6(3)(a) of the *Drilling and Production Regulations* the applicant for a well licence must indicate in the Application for Well Licence "...all spacing units that are in the proposed drainage unit for the well".

6(3) An applicant proposing to drill a horizontal well shall provide the director with the following:

- (a) an indication, on the plan required under clause (1)(b), of the bottom hole location of the well and the boundaries of all spacing units that are in the proposed drainage unit for the well;*
- (b) a diagram that shows the proposed profile of the well;*
- (c) a copy of any agreement that allocates the production of any oil and gas from the horizontal well among all owners in the proposed drainage unit.*

MANITOBA SPACING REGS

- Again, **common ownership** is required to be compliant.
- See 6(3)(c) above.

MANITOBA SPACING REGS

- This automatic establishment of a drainage unit for a horizontal well is consistent with MIEM Information Notice 11-03 dated April 29, 2011.
- Ergo, Manitoba does not have a one well per spacing unit per pool rule for horizontal wells.
- Multiple horizontal wells can produce from the same spacing unit, subject to minor distance requirements.

MANITOBA SPACING REGS

See section 63 of the *Drilling and Production Regulations*:

Multiple wells in spacing unit

63(1) Subject to subsection (3), an application under section 107 of the Act for approval to produce oil and gas from a well in a spacing unit in which a well is producing or capable of producing oil and gas must be made to the director and must include a discussion of the effect of the proposed well on:

- (a) recovery from the spacing unit; and*
- (b) correlative rights.*

63(2) Subsection (1) does not apply to a horizontal well.

ISSUES ARISING

- Good Lord, that was awful. However, for my own benefit, and yours, I wanted to have a single reference point to understand spacing units in all three provinces of the WSB.
- Now the fun part, how do these changes impact our everyday activities as landmen.

JOINT OPERATIONS

- All CAPL Operating Procedures are based on the underlying premise of one well per pool regulatory structure.
- Once you can drill more than one well per pool, you have potential conflicts between the Operating Procedure and reality.

JOINT OPERATIONS

Penalty on Second Well in a Pool?

- In AB, penalty on any wells in a single pool creates a disconnect between allowable density drilling and the requirement of common ownership.
- Although a penalty does not affect the underlying WI of the parties, the differential share of production from each well might still be a non-compliance event.

JOINT OPERATIONS

Penalty on Second Well in a Pool?

- How can you equitably produce from a joint wellbore and a penalty wellbore in the same pool.
- Operator mischief.

PRODUCTION ALLOCATION

- The requirement of common ownership in the productive segment of the HZ wellbore results in the need for production allocation agreements:
 - Among included tenures (except Crown on Crown)
 - Among WI owners
 - Including GOR holders

PRODUCTION ALLOCATION

- In all 3 jurisdictions you need some type of common ownership agreement or confirmation to licence and produce your Hz well.

PRODUCTION ALLOCATION

- What happens when lessors refuse to sign?
- What if they want different terms than the AB Crown PAUA?
- What if some want a meters drilled calculation and other want a equal DSU calculation?

PRODUCTION ALLOCATION

- What happens when the WI owner in the next section refuses to sign?
- Especially annoying if the same dude is your partner in joint lands and is drilling the lights out of the adjoining section.

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PRODUCTION ALLOCATION

- What about the crazy old GOR holder in one tract who never signs anything and threatens to sue every month already?

FREEHOLD LEASES

Offset Obligations

- I was originally spooked that the death of the spacing unit would fundamentally alter offset obligations.
- I am now comfortable that this will not occur, as all 3 provinces maintain a $\frac{1}{4}$ section or Lsd DSU concept even if you can drill more than one well per pool.

FREEHOLD LEASES

Density Drilling Obligations

- More serious will be the rise of density drilling obligations under non-CAPL leases and modified CAPL leases
- Concept is serious, but may be less serious than straight contractual offsets since some allowance for the reserve potential on your lands is considered.

EXCLUDING VERTICAL WELLS

- Increasingly, Sale Agreements or Farmouts will leave behind standing vertical wellbores in the same pool.
- The idea is to drill a fancy new Hz well on the lands but leave the old well with the vendor/farmor

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EXCLUDING VERTICAL WELLS

- This creates common ownership issues.
- Also can create problems later if the holder of the vertical well wants to rework the well.

DON'T FRAC WITH ME

- Lastly, a quick note on the increasing damages fracing of wells is causing to existing wellbores
- Problem is increasing as fracs get bigger and inter-well spacing gets smaller

DON'T FRAC WITH ME

- In AB, *Directive 083: Hydraulic Fracturing – Subsurface Integrity* is now in force
- Includes the Hydraulic Fracturing Notification Submission Form and right of affected wellbore owners to require monitoring during the frac.

DON'T FRAC WITH ME

- Whole separate topic, but a very important consequence of increasing well proximity.

THANKS FOR LISTENING

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