

extension pursuant to Section 18(6) if one or more of the following conditions are met:

- operations have been conducted on the agreement to prove it productive during the one year notice;
- there are drilling restrictions on the agreement such as winter drilling or environmental constraints;
- there are other extenuating circumstances.

When determining productivity, Alberta Energy only considers data that is publicly available or that is supplied by the applicant. **AER confidential data is not available to Alberta Energy.**

Notes on Technical

ALL DATA IS HELD CONFIDENTIAL. Alberta Energy does not make data supplied by applicants available to anyone else unless authorised to do so by the party who provided the data. No information submitted for a continuation is used for any other application, even if it relates directly to another agreement.

If you wish your data to be used to support someone else's application, you must authorize Alberta Energy to do so.

Minimum data requirements are described in this guide. **The success of your application may be affected if this data is not submitted.**

You may authorize Alberta Energy to refer to data previously submitted by your company in the past 12 months in support of another application. In the Data Tab, specify the data you want reviewed, the date it was submitted, and the agreement number(s) to which it is related.

You are welcome to present data in person at Alberta Energy's Edmonton office. Contact PNG Continuations to book a meeting. Please have the following information ready:

- Preferred date and time (if possible, have an alternative in case your preferred date or time is not available)
- Crown agreement number(s)

- Zone(s)
- Who will be attending
- Audio-visual equipment required
- Approximate length of time required
- Type of data being presented (geological, engineering, geophysical)

All data relevant to your application should be included. Note that data submitted to the AER is not available to Alberta Energy, with the exception of wells, production data and test data that are non-confidential and that have been entered on the AER system. Data that has been released from confidential status for less than three months, and data that has only recently been submitted (eg: recent test or production data), may also be unavailable.

Following Alberta Energy's initial review of your application, more information may be requested. Failure to submit additional data as required will affect the success of your application.

All productive and potentially productive zones must be listed.

Copies of the well logs and cross-sections must be legible and should include a large enough interval to correlate the zones; ie: completed interval plus regional markers above and below.

To avoid ambiguity, all wells should be referred to by unique well identifier.

All data submitted is retained by Alberta Energy, with the exception of seismic sections, which may be returned upon request (check Return Seismic in the Administration Tab).

Where the guidelines specify that test results are required, this usually refers to a test that provides a measurable rate, such as a drillstem test or a production test. However, in situations where the normal testing of a well is prevented by regulatory constraints, other forms of test may be considered. Supporting data may include all types listed in different sections of this Guide, as well as:

- Maps including paleogeographic, facies development and trend maps

- Core or sample descriptions, including adsorption data for CBM
- Geological or technical discussion
- Geophysical seismic data with synthetic well tie
- Engineering data including oil and gas analyses, pressure data and dewatering data (for CBM)
- Reserves information including material balance and volumetrics calculations
- Test data such as spinner surveys, temperature logs, and injectivity tests (for CBM)
- Surveys for horizontal or deviated wells with vertical and horizontal projections of the well's trajectory
- AER applications and approvals, changes in spacing units, EORs, and Projects

- other wells in the area that are productive from the same zone;
eg: a well that produces seasonally, and is shut in for several months of every year.
- the well has been production tested or has previous production that is comparable to other wells in the area that are productive from the same zone, but is presently shut in for a reason other than economics or poor productivity;
eg: a well in which a deeper zone is shut in to allow a shallower zone to produce.

An oil well will not qualify for continuation under Section 15(1)(a) if:

- it is suspended because it is presently uneconomic to produce.

Productive Well 15(1) (a)

15(1) . . . A lease qualifies for continuation . . . as to all or a part of its location that is within any of the following:

(a) The spacing unit for a well that is productive from a zone in the location . . . or producing petroleum or natural gas from a zone in the location . . .

Summary

Continuation may be granted for the spacing unit of a well from the top of the shallowest productive zone to the base of the deepest productive zone. Continuation could be zone specific due to Shallow Rights Reversion.

Guidelines

Oil Wells

An oil well will qualify for continuation under Section 15(1)(a) if:

- it is physically producing at expiry.

An oil well will qualify for continuation under Section 15(1)(a) if:

- it has been recently tested with results comparable to other wells in the area that are productive from the same zone;
eg: a well that was tested just before expiry with good results and no apparent problems, and is about to be put on production.
- the well has produced, and is still capable of producing at rates that are comparable to

Gas Wells

A gas well will qualify for continuation under Section 15(1)(a) if:

- it is physically producing at expiry;
- it has been tested with results comparable to other wells in the area that are productive from that zone;
eg: a Medicine Hat gas well that tested at 1,000 m³/d with no indications of production problems. or
eg: an Ardley Coalbed Methane gas well that tested at 1,000 m³/d with no indications of production problems.
- the well has produced, and is still capable of producing at rates that are comparable to other wells in the area that are productive from the same zone;
eg: a well that produces seasonally or to fulfill a gas contract.

A gas well may qualify for continuation under Section 15(1)(a) if:

- it is untested, but its log characteristics indicate that it is productive, when compared to other wells in the same pool that have been tested or are producing;
eg: a capped gas well that is demonstrably in the same pool as several other productive wells.
- there is associated gas;
eg: a zone whose production and log characteristics indicate an oil leg with an associated gas cap.

- the zone is temporarily abandoned, but meets some or all of the criteria for productivity;
eg: a well that is bridge-plugged above a productive zone to allow a shallower zone to be tested.
- the well is currently being used for the purpose of CBM production. This may include a well that is still in the dewatering stage.

A gas well will not qualify for continuation under Section 15(1)(a) if:

- it has been tested at a rate significantly lower than is considered economically viable for the area;
eg: a Foothills well that tested 1,000 m3/d from the Mississippian.
- it tested gas TSTM (too small to measure), even if other wells in the area yielded the same results and were subsequently completed as producing wells;
- it tested gas at high rates but displayed indications that it would not be capable of sustained production in paying quantity;
eg: a well whose test results indicated depletion, high water cuts, limited reserves, or fluids in the well (heavy oil or water).
- the zone is permanently abandoned, even if it was tested at rates comparable with other wells in the area that are productive from the same zone.

Units and Gas Storage Agreements 15(1)(b) and (d)

15(1)(b) and (d). . . A lease qualifies for continuation . . . if a spacing unit all or part of which is within the unit area of a unit agreement to which the lease is subject [or] a spacing unit all or part of which is within the area of a gas storage agreement to which the lease is subject.

Summary

For each spacing unit within a gas storage or unit agreement, continuation may be granted for the rights contained in the gas storage or unit agreement.

Guidelines

A spacing unit is considered productive if a leased zone within it is subject to the unit, production allocation unit agreement or gas storage agreement. Alberta Energy reviews data to determine, for each spacing unit, the shallowest and/or deepest zone in the unit, production allocation unit agreement or gas storage agreement, and to verify that they are included in the lease or licence.

Offset Compensation 15(c)

15(1)(c) . . . A lease qualifies for continuation in a spacing unit adjoining the spacing unit for a freehold well if . . . the lessee in accordance with this Regulation and before the expiration of the term of the lease, has notified the Minister in writing that the lessee elects to pay offset compensation in respect of the location or the part of the location within the spacing unit, and offset compensation is being paid in respect of the location of the part of location within the spacing unit, . . . and the offset compensation is being paid in respect of the location or the part of the location within the spacing unit.

Summary

Continuation is granted, in the offset zone for any spacing unit that is subject to an obligation to pay offset compensation.

Guidelines

A zone is considered productive if the lessee has elected to pay offset compensation on the production from an adjacent freehold well. Alberta Energy reviews the freehold well to determine if the zone is still producing and is included in the Crown agreement.

Productive Pool 15(1) (e)

15(1)(e) . . . a lease qualifies for continuation . . . in a spacing unit all or part of which is productive from a zone in the location.

Summary

The lessee may supply mapping and other technical data demonstrating that a spacing unit is underlain by a productive pool. Continuation is granted for the spacing unit of the productive zone(s) mapped, from the top of the shallowest productive zone to the base of the deepest productive zone.

Continuation may be zone specific due to Shallow Rights Reversion.

Guidelines

A spacing unit is considered productive for oil or gas if:

- there is at least one productive well in the pool,
- mapping supported by other technical information is supplied by the lessee (Alberta Energy will not generate mapping for the lessee) that demonstrates the presence of a productive pool, and
- the mapped productive pool underlies the spacing unit in the opinion of Alberta Energy.

Note

If there is more than one productive zone that can be continued under Section 15, the rights granted would be from the top of the shallowest productive zone to the base of the deepest productive zone.

Qualifying Well 16

16(1)(a) . . . a well is a “qualifying well” in relation to a lease if all of the following apply at the expiration of the term of the lease:

- (i) the drilling of the well has commenced and the rig release date for the well has not yet occurred, or rig release date for the well occurred not more than 3 months before the date of the expiration of the term of the lease;
- (ii) in the opinion of the Minister, the well has or will evaluate petroleum and natural gas rights in the location of the lease;
- (iii) the well has not previously been used as a qualifying well for continuation of any lease as to the whole or a part of its location pursuant to this section;

(iv) if the lease was previously continued as to the whole or part of its location pursuant to this section, the well is drilled in a section of land that contains a portion of the previously continued location.

16(1)(b) . . . the “qualifying area” in relation to a well that is a qualifying well in respect of a lease is:

- (i) the location of the lease, if the qualifying well is drilled in the location of the lease or in a section of land containing the whole or part of the location of the lease, or
- (ii) if the qualifying well is drilled outside the location of the lease, the portions of the location of the lease that are contained within the sections of land that
 - (A) adjoin the section containing the well, or
 - (B) are, at their closest points, less than one intervening section from the section containing the well;

16(1)(c) “previously continued location” means the whole or part of the location of one or more leases that have been continued pursuant to this section on the basis of a single qualifying well.

16(2) . . . if at the expiration of the term of a lease there is a qualifying well in respect of the lease, the lease qualifies for continuation on application . . .

(a) if the lease was not previously continued as to the whole or part of its location pursuant to this section, the Minister shall continue the lease as to parts of its location that are contained in not more than 9 sections of land within the qualifying area of that well;

(b) if the lease was previously continued as to the whole or part of its location pursuant to this section, the Minister shall continue the previously continued location, except for any portions of the previously continued location that have been surrendered or that have been continued pursuant to Section 15.

16(5) . . . where a lease is continued pursuant to this section as to the whole or part of its location, the whole or part of its location so continued expires at the end of the 6-month period following

(a) the rig release date of the qualifying well, or

(b) where there are 2 or more qualifying wells in respect of a previously continued location, the rig release date of the well with the latest rig release date.

16(6) . . . if a lease is continued pursuant to this section, the Minister may from time to time grant an extension of that continuation period subject in the case of each extension to the following:

(a) the lessee must apply to the Minister for the extension before the continuation period expires;

(b) The application will be granted only if the Minister considers the extension warranted in the circumstances.

Summary

Section 16 provides for a short-term continuation of up to a maximum of nine sections to allow for the drilling and/or testing of one or more wells. It may be applied for at the end of a primary term of a lease or the intermediate term of a licence, or following a previous continuation pursuant to Section 16, Section 17, or notice under Section 18.

If an agreement contains a well that is drilling at expiry or has a rig release date in the last three months of the primary/ intermediate term, up to nine sections of the agreement will continue for six months from the rig release date. No severance of rights takes place at this time.

The drilling of subsequent wells during the Section 16 term must be drilled on a “previously continued location” – Section 16(1)(c) and Section 16(1)(a)(iv) which will trigger further continuation periods of six months each from the rig release date. Once the drilling program has been completed, the spacing unit may be eligible for continuation under Section 15.

Guidelines

For continuation under Section 16:

You may apply for a six month continuation based on the rig release date of the qualifying well for:

- up to nine sections of land per qualifying well in a single agreement if the well is drilled on this single agreement, or
- If the well is not located on the agreement, up to nine sections of land per qualifying well provided the nine sections being selected touch or corner the section containing the qualifying well, or at their closest point, are less than one intervening section from the section containing the qualifying well;
- The configuration of which nine sections can be selected depends on where the well is drilled in relation to the agreements surrounding the well.
- The qualifying area is determined by whether the well is drilled on location, off location of the lands being continued, or if it is a combination of both.

All lands or agreements using the same qualifying well must be submitted on one application form as a qualifying well cannot be used more than once.

Applications based on more than one qualifying well – all agreements must be submitted on one application.

For a subsequent continuation based on the drilling of a new qualifying well, continuation will be granted for an additional six months, provided:

- the well is drilled on the previously continued lands.

For Horizontal wells:

Each section that a horizontal well bore goes through is considered as having its own well drilled.

A horizontal well may increase the qualifying area used to select nine sections.

A maximum of nine sections may be selected from one (horizontal) well.

The distance criteria remains that the sections of land eligible to continue must touch or corner the

sections of land that the qualifying well goes through.

Potentially Productive Zones 17

17(1) . . . A lease qualifies for continuation as to the whole or part of its location that is contained in up to nine sections of land described in subsection (2) that are selected by the lessee on the basis of a well that

- (a) is productive, or
- (b) in the opinion of the Minister, potentially productive.

17(2) . . . Each section of land that the lessee may select with respect to a well must

- (a) contain the well, or
- (b) adjoin or, at its closest point, be less than one intervening section from the section that contains the well.

Summary

Continuation pursuant to Section 17 is only available after the expiry of the primary term of a lease or the intermediate term of a licence. It does not apply after a period of continuation under Section 16 or Section 17 and cannot be granted after a Section 18 notice. The lessee may apply for continuation pursuant to Section 17.

There is no provision for mapping in Section 17. Section 17 continuation may be granted for up to nine sections that adjoin, or at their closest point are less than one intervening section from the section that contains a producing, productive or a potentially productive well.

The agreement is severed below the base of the deepest potentially productive or productive zone.

At the expiry of a Section 17 continuation, the spacing unit may be eligible for further continuation under Section 15 or Section 16.

Section 17 is not subject to Shallow Rights Reversion.

Guidelines

A zone in a well not considered productive under Section 15(1)(a) may be considered potentially productive if the well is not abandoned, and at least one of the following conditions is met:

- drilling of the well, testing of the well or production has to occur during the term of the agreement
- the zone was previously producing,
- the zone has been tested with questionable results (during the term of all agreements being continued using that well),
- the zone has untested associated gas (gas cap),
- the zone has log pay or
- the zone has other indications of hydrocarbon potential.

If the well is abandoned, it may be considered potentially productive if a zone in the well has log pay that is supported by other data such as:

- nearby wells, having analogous log characteristics, that are productive from the same zone,
- core or sample data with porosity, permeability and hydrocarbon shows,
- kicks or indications of hydrocarbons while drilling,
- test results from the zone indicating hydrocarbon potential,
- the zone was previously producing and has remaining reserves.
- the abandonment of the well occurred during the term of the agreement

Section 17 using a horizontal well:

Sections with producing wells must be continued pursuant to Section 15 and sections selected for Section 17 must adjoin, or at their closest points, be less than one intervening section from the section containing the well bore.

Notice of Non-Productivity 18

18(1) The Minister may give a lessee written notice in accordance with this section if

- (a) the lease is continued pursuant to Section 15(1)(a) or (e) as to all or any part of its location in a spacing unit and the Minister considers that the

deepest productive zone in the spacing unit is then no longer productive,

(b) the lease is continued pursuant to Section 15(1)(b) as to all or part of its location in a spacing unit and the deepest productive zone in the spacing unit is then no longer subject to a unit agreement,

(c) the lease is continued pursuant to Section 15(1)(c) as to all or part of its location in a Crown spacing unit and the freehold well concerned has, for a continuous 6-month period, ceased to produce petroleum or natural gas from the zone that is the same as the deepest productive zone in the Crown spacing unit, and the Minister considers the zone in the freehold spacing unit to be no longer productive, or

(d) the lease is continued pursuant to Section 15(1)(d) as to all or part of the location in a spacing unit and the deepest productive zone in the spacing unit is then no longer subject to a gas storage agreement.

18(8) If a notice is given to a lessee pursuant to this section then, subject to subsection (9), the lease expires at the end of the one-year period referred to in the notice as to the whole or part of the location, or the subsurface portion, as the case may be, to which the notice relates.

18(9) Before a lease expires in respect of all or part of its location or a subsurface portion, as the case may be, at the end of the one-year period pursuant to subsection (8), the lessee may apply for approval of the continuation of the lease pursuant to Section 15 or 16 as to the location or the part of the location or the subsurface portion, as the case may be, or any lesser area or subsurface portion, and for that purpose Section 14, 14.1 and 14.2 apply, with the necessary changes, as though the expiration of the one-year period were the expiration of the term of the lease.

Summary

A notice issued pursuant to Section 18 advises the lessee that a spacing unit of an agreement continuing under Section 15 is no longer considered productive. The Section 18 notice is for one year, at the end of which the lessee may apply for further continuation under Section 15 or Section 16.

An agreement that is continuing under Section 18 may be eligible for a short-term extension pursuant

to Section 18(6) if one or more of the following conditions are met:

- operations have been conducted on the agreement to prove it productive during the one year notice period;
- there are drilling restrictions on the agreement such as winter drilling or environmental constraints;
- there are other extenuating circumstances.

Guidelines

Any changes (eg: new drilling, changes in production, well status changes) which put in question the productivity of a spacing unit may result in a Section 18 notice being served. The one-year notice applies to the rights below the base of the deepest zone considered productive by Alberta Energy. Note that the lessee may have information that Alberta Energy does not have (eg: flow tests, new production), and may be able to satisfy the notice simply by producing this information. In some cases, the lessee may have already submitted the data to us in connection with the same or a different agreement, in which case he can direct us to use that data again.

A request by a person other than the lessee to review the productivity of an agreement is acted upon if, in the opinion of the Manager of Continuations, it appears to be in the public interest to do so. A request for a Third Party review should therefore include information to support the belief that the review would be in the public interest. A review may then be conducted to determine if there are circumstances which would lead to the serving of a Section 18 notice, such as well abandonment or pool depletion. A notice will not be served if the agreement is subject to an offset obligation, or included in a unit or an AER-approved project (see IL 2004-14 for additional information).

Continuation under Section 17 is not available at the expiry of the Section 18 notice.

Review of Continuation Decision 14(3)

14(3) . . . If the Minister determines under subsection(2)(a) that a lease qualifies or does not

qualify for continuation with respect to any part of the location of the lease that is included in the application, the Minister shall give a notice to the lessee that

(a) sets out what the Minister has determined under subsection(2)(a)whether the lease qualifies for continuation as to whole or part of the location of the lease in respect of which the application is made, and

(b) in the case of the a determination that the lease does not qualify for continuation with respect to any part of the lease that is included in the application, specifies the deadline by which the lessee may respond to the notice.

Summary

A notice is sent to the applicant in cases where Alberta Energy disagrees with the application and is not prepared to continue some or all of the lands or rights. The applicant may submit additional information before the agreement expires. After an agreement expires the applicant may request a review and submit additional information within one month from the date of the notice.

Guidelines

The notice informs the applicant that Alberta Energy is not prepared to continue the agreement in accordance with the application. The notice may offer the option of continuing the lands or rights under section 17, or it may inform the applicant that Alberta Energy does not consider any of the lands or rights to be productive.

If new information is submitted, it must relate to operations conducted before expiry of the agreement.

Data obtained from a well that was deemed confidential by the AER at the time the agreement expired is not eligible to be included in the review.

Information submitted that relates to operations conducted after agreement expiry is ineligible and may constitute a potential trespass.

The decision will only be reviewed if there is new, eligible information to support the request.

The request for review can only be submitted by the applicant for lands/rights that were originally applied for and must be submitted within the required deadline.

Definitions

Adsorption

The adhesion of a layer of molecules of a liquid, gas or dissolved substance to the surface of a solid.

Adsorption Isotherm

The quantitative relationship, at constant temperature, describing how the concentration of adsorbed phase molecules at an interfacial surface varies as a function of increasing pressure.

Associated Gas

Defined in the AER Reserves Publication as gas in a free state in communication in a reservoir with crude oil, under initial reservoir conditions.

Capable of Producing in Paying Quantity

Not defined in the Petroleum and Natural Gas Tenure Regulation. By policy, capability is determined by Alberta Energy based on several factors including production, tests, reserves, logs and mapping of wells on the agreement and in the area.

Coal Cleat

Characteristic continuous fissures in coal that occur in orthogonal sets that are formed during and as a part of the coalification process. These fissures may be as closely spaced as several millimetres.

Coalbed Methane (CBM)

A naturally occurring hydrocarbon gas, predominantly methane, generated by coal and stored in coal seams.

Coal Rank

The term used to define discrete points in the maturation process in the formation of coal from freshly deposited organic matter in swamps to a graphite like material at the end of the progression.

Rank may vary within a seam and from seam to seam.

Deeper Rights Reversion Zone Designation (DRRZD)

See “Zone”.

Dewatering

In a Coal Seam that is charged with water, the water must be removed from the coal to lower the pressure and to initiate methane gas desorption.

Gas Content

Gas is stored in coal as free gas in fractures such as cleat and as adsorbed gas within the matrix of the coal. The “Gas Content” in coalbed methane technology is conventionally considered to be the amount of gas adsorbed by the coal matrix and is expressed as volume per unit weight.

Location

Defined in section 1(l) of the *Petroleum and Natural Gas Tenure Regulation* as:

- (i) *the subsurface underlying the surface area of the tract described in the licence or lease as its location, or*
- (ii) *where the licence or lease grants rights to petroleum or natural gas or both in some but not all of the subsurface, the subsurface area or areas underlying the surface area of the tract described in the licence or lease as its location and in respect of which the rights are granted.*

Maceral

Microscopic organic particles in coal that are a result of the maturation process in the formation of coal.

Mapping

Geological mapping such as net pay, hydrocarbon pore volume and structure maps supported by cross-sections and any other data that establishes the areal extent of the pool (eg: geophysical data, engineering data).

For unconventional resources, geochemical analysis, x-ray diffraction analysis, gas adsorption analysis, rock evaluation (Tmax), TOC (total organic carbon) in addition to any of the aforementioned map types.

For CBM, methane adsorption, permeability and coal isopach maps in addition to any of the aforementioned map types.

Natural Gas

Defined in section 80(2)(a) of the *Mines and Minerals Act* and used to determine ownership of production when the title to the natural gas and the petroleum is split: . . . the production from any well that, in the opinion of the Minister, initially produces gas either alone or with oil at a gas-oil ratio of 1800:1 or higher. . .

Offset Zone

Defined in section 1(n) of the *Petroleum and Natural Gas Tenure Regulation* as:

- (i) *in relation to a freehold spacing unit, a zone underlying the freehold spacing unit and identified in an offset notice in accordance with section 20(2)(a), or*
- (ii) *in relation to a Crown spacing unit adjoining a freehold spacing unit that is the subject of an offset notice, the zone underlying the Crown spacing unit that is the same as the zone identified in the offset notice in accordance with section 20(2)(a).*

Petroleum

Defined in section 80(2)(b) of the *Mines and Minerals Act* and used to determine ownership of production when the title to the natural gas and the petroleum is split: . . . the production from any well that, in the opinion of the Minister, initially produces oil either alone or with gas at a gas-oil ratio of less than 1800:1 . . .

Pool

Defined in the *Oil and Gas Conservation Act* as a natural underground reservoir containing or appearing to contain an accumulation of oil or gas or both separated or appearing to be separated from any other such accumulation.

Potentially Productive Part of the Location

Defined as:

- (i) *a part of the location of the lease in which one or more potentially productive zones occur, or*
- (ii) *a subsurface area lying stratigraphically below the base of the deepest productive zone in all or part of the location of the lease and in which one or more potentially productive zones occur.*

Potentially Productive Zone

Defined as a zone that is, potentially capable of producing petroleum or natural gas or both in paying quantity.

Producing Well

Defined in section 1(q) of the *Petroleum and Natural Gas Tenure Regulation* as a well that is considered by the Minister to be a producing well on the basis of the records of the Regulator and other information available to the Minister.

Productive

Defined in section 1(r) of the *Petroleum and Natural Gas Tenure Regulation* as in relation to a well or zone, means capable, in the opinion of the Minister, of producing petroleum or natural gas from the well or zone in paying quantity.

Regulator

Alberta Energy Regulator (AER)

Rig Release Date

Defined in section 1(t) of the *Petroleum and Natural Gas Tenure Regulation* as the rig release date for the well according to the records of the Regulator.

Shale Gas

Gas produced predominantly from mudstone or shale successions as demonstrated by core or interpreted from wellbore logs and drill cuttings. A shale gas zone is exclusive of thick sandstones, siltstones and clean carbonates. Gas production from these zones does not occur within, or in communication with, conventional hydrocarbon pools (as defined by AER pool orders).

Shallow Rights Reversion

Shallow rights reversion means that the rights above the top of the shallowest productive zone in an agreement will be severed from the agreement at continuation. This will be in addition to existing deeper rights reversion. Rights between the top of the shallowest productive zone and the base of the deepest productive zone will remain in the agreement.

Spacing Unit (SU)

Defined in section 1(u) of the *Petroleum and Natural Gas Tenure Regulation* as

- (i) *in relation to a well drilled or being drilled,*
 - (A) *the drilling spacing unit for the well prescribed by or pursuant to the Oil and Gas Conservation Rules (AR 151/71), or*
 - (B) *where the Regulator has issued an order suspending the operation of Part 4 of the Oil and Gas Conservation Rules (AR 151/71) in respect of the area in which the well is drilled or being drilled, the area that was, immediately before the effective date of the order, the drilling spacing unit prescribed for the well by or pursuant to those Rules,*
- or
- (ii) *the area that would be the drilling spacing unit prescribed for a well by or pursuant to those Rules if the well were drilled and in the absence of any order of the Regulator suspending the operation of Part 4 of those Regulations in respect of that area.*

Vitrinite Reflectance

Characteristic and measurable reflectance of light from the surface of a vitrinite maceral that can be used to determine the rank of the maceral or maceral group being examined.

Zone Designation (ZD)

See "Zone".

Zone

Defined in section 1(x) of the *Petroleum and Natural Gas Tenure Regulation* as a stratum or series of strata considered by the Minister to be a zone for the purposes of this Regulation. In many cases zones may be geological formations, but in some instances they are larger (geological groups) and include more than one formation (eg: the Mannville zone includes numerous formations).

A Zone Designation (ZD) designates a lithostratigraphic zone described specifically by the depths identified in a particular well. ZDs are used, for instance, to describe the zones included in natural gas leases. When a ZD is being used the depths and the interval take precedence over the name given to the zone.

A Deeper Rights Reversion Zone Designation (DRRZD) identifies a zone by its name. As noted in ERCB Decision 95-10, historically the name of the zone identified within type wells takes precedence over the depths identified in terms of utilizing a DRRZD. DRRZDs are used primarily for deeper rights reversion, but can also be used for other purposes, such as offsets. For the time being DRRZD's will be used to describe the shallow rights for shallow rights reversion.

Section 33(2) of the Oil and Gas Conservation Act authorizes the AER to resolve any dispute concerning ZDs or DRRZDs.