

CROWN INVOLVEMENT IN UNITS

The Department of Energy is the manager of Alberta's hydrocarbon resources. Its mandate, in part, is to encourage the identification and development of the oil and gas reserves of the province in a manner that is consistent with the economic, environmental and employment interests of Alberta.

When the department enters into a unit agreement on behalf of the Province of Alberta, it is committing Crown lands to the unit for an unspecified period of time and is agreeing to accept royalties on the basis of allocated rather than actual production. In a unit which combines Crown and freehold interests, it is therefore critical to verify that the Crown lands have been allocated tract participations which reflect the Crown's share of the reserves. It is also important, in any unit, to ensure the agreement complies with land tenure legislation and policy.

There must be diversity of ownership, either at the lessee or at the lessor level, for a unit to be considered. If the Crown were the only lessor and all the lands were held by one company (or group of companies in the same proportional interests), a unit would be rejected by the department as being unnecessary.

THE DEPARTMENT'S POLICIES ON UNITIZATION

The department enters into units on behalf of the Province of Alberta, under the authority of the *Mines and Minerals Act* (section 102). The department must ensure a proposed unit is equitable and fair to all participants and that any lands not included in the unit are not adversely affected by the formation of the unit.

The department reviews a proposed unit agreement with the following principles in mind:

1. The Crown must consider all of the lands within a unit to be productive. Non-productive freehold lands would dilute the Crown's interest, and non-productive Crown lands would remain leased and committed to the unit, contrary to the department's land tenure policies.
2. Ideally, the unit should cover an entire pool. Oil pools *and* their associated gas caps should be jointly unitized. Where this is not possible, the department will try to ensure that no "windows" are created within the unit, and that the owners of any adjacent lands which could be adversely affected are offered participation in the unit upon reasonable terms. In order for the unitization to proceed without these lands, letters from these owners declining participating in the unit is normally required.
3. The basis for determining tract factors, particularly in a unit containing both Crown and freehold lands, must be equitable and technically justifiable. Equitable tract factors are typically based upon a combination of two or three factors such as hydrocarbon pore volume, remaining recoverable reserves and productivity. A formula that heavily penalizes undrilled lands is not acceptable to the department as a basis for tract participation. Lands undrilled at the time of the formation of the unit may be drilled later, but will always retain a reduced tract factor. Surface area is also an unacceptable factor for determining a unit

unless there is no valid technical basis. If the tract factors are determined to be inequitable in a unit that is 100 percent Crown land, the department will inform the operator but will not ask for any adjustment. The first principle, above, necessitates that no lands be allocated a tract factor of zero.

4. The unit should be comprised of complete spacing units for the unitized substance. Drilling a well on an incomplete spacing unit, either inside or outside the unit boundary, will necessitate a pooling agreement between the unit and the owner of the non-unitized portion of the spacing unit. When a unit contains oil and a gas cap it may not be necessary to include gas spacing units throughout the entire unit area, but full sections should be included in the gas cap area as well as for any wells that will later be used to blow down the gas cap.
5. All Crown leases to be included in the unit must contain the appropriate rights and be in good standing. Leases should be monitored while the unit negotiations are proceeding to ensure any expiries during that period are dealt with. ***The department will NOT automatically continue leases that are within a proposed unit.*** Unless leases are proven productive and the continuation is resolved, leases that are subject to section 17 or 18 of the Petroleum & Natural Gas Tenure Regulations will not be included in the unit. Unless drilling has validated petroleum & natural gas licences and the appropriate sections remain in the licence for its intermediate term, licences in their initial term will not be included in the unit.
6. If the unit is being formed to implement a waterflood, gas cycling scheme, gas storage scheme or any other enhanced recovery project that requires approval from the Alberta Energy and Utilities Board (EUB), the unit must contain all of the lands included in the approval. EUB approvals and units are both production entities for the purposes of Crown royalty, and if they conflict, the royalty calculations will have to be done manually. Not only is this time consuming, but it will also disrupt the negotiated equity of the tract participations, since the land outside the unit will be added in on an areal basis.

TECHNICAL DATA REQUIREMENTS

1. Geological mapping of the pool, superimposed on the unit outline, together with the parameters on which it was based. This should include structural mapping and net pay and/or hydrocarbon pore volume mapping.
2. Structural and/or stratigraphic cross-sections to support the mapping, showing gas/oil/water contacts if possible.
3. Detailed information on the method used to calculate the tract factors. Tables, formulae and calculations must be included, as well as any background material (e.g. core analyses, flow tests) used to determine value, and explanations for any assumptions made and used in the process. Terms such as "adjusted hydrocarbon pore volume", "fluid factors", "cycling capability", "production period", "gas/oil ratio cutoff", "available processing capacity" and "functioning wells" should be defined.

4. Complete set of well data for any confidential wells: logs, drillstem tests, completion report, absolute open flow/flow test/initial production (*confidential data is NOT available to the department through the EUB*).
5. Copies of any applications made to the EUB, and approvals granted by them for enhanced recovery schemes, gas cycling schemes, gas storage schemes or any other operation to be conducted by the unit.
6. Pressure surveys, material balance calculations, and any other reservoir information that supports the size and continuity of the reservoir, or the productivity of the unit lands.
7. Seismic support (mapping and interpreted lines), if applicable. All relevant lines that support the mapping should be included, not just one or two examples. Seismic should be accompanied by synthetic seismic logs.
8. Written confirmation from any owners of lands with mapped pay not included in the unit (e.g. windows, peripheral tracts) they do not wish to commit their lands to the unit.
9. The Exhibit "C" should be a clear copy of the well log, properly labeled, with the top and bottom of the unitized interval marked by horizontal lines on the logs.

All data submitted to the department is retained in our files, with the exception of seismic lines, which can be returned upon request by the applicant. All data is kept strictly confidential and is not released or made available to anyone other than the party that submitted it.

PRODUCTION ALLOCATION UNIT AGREEMENTS

The Production Allocation Unit Agreement (PAUA) is a cross between a pooling agreement and a unit that has been developed for use where varied "Royalty and Working Interest Owners" wish to share the production from a single well.

The well may be an off-target gas well that will drain an entire pool underlying portions of two or more drilling spacing units. The EUB will no longer grant an enlarged gas drilling spacing unit, but will approve a holding provided that the ownership is common at both the lessee and lessor levels.

It could also involve a horizontal oil well whose producing section crosses Crown and freehold lands. In this instance, the following technical data is required:

- wellsite survey to confirm the surface hole coordinates
- directional surveys for each drilled leg to calculate open hole lengths on each tract
- daily drilling reports to confirm casing points and kick off points for each leg
- plan view of the drilled legs to determine which drilling spacing units have been penetrated and should be included in the PAUA
- geologic strip logs and electric logs.

The department is not empowered to sign pooling agreements, and the PAUA is the only vehicle, short of a unit agreement, that will achieve common royalty ownership.

The agreement provides for the sharing of costs, revenues and royalties on the basis of allocated production and, if possible, the tract participations are based on technical parameters rather than on surface area. Offset obligations are eliminated and leases are continued for as long as the well produces.

The agreement becomes effective at 0800 on the first day of the first calendar month which is the earliest of:

- the month in which production of production allocation substances from the well commences, or
- the month following the date of execution and delivery of the agreement by the owners of one hundred percent (100%) of the Working Interest and one hundred percent (100%) of the Royalty Interest within the production allocation area.

Typically these agreements would terminate when a second producing well is drilled within the PAUA. In that scenario, graduating to a unit agreement may be necessary to maintain common royalty ownership.

The basis for determining tract participations must be equitable and technically justifiable. These factors may include open hole wellbore lengths on each tract, acreage or mapped hydrocarbon pore volume. When calculating tract factors, in most cases the road allowance portion of the open hole section of wellbore may be ignored and may not be included in the calculation for either the Crown or freehold tract.

THE REVIEW PROCESS

The length of time required by the department to review a unit proposal can vary greatly, depending on the complexity and completeness of the data presented, and the current workload of the various groups whose input is required.

The following guidelines will help the department review your unit as quickly as possible:

1. Contact the department early in the unitization process.
2. Once the "Working Interest Owners" have agreed on a unit outline, the department can advise whether the outline is acceptable. This will allow unit negotiations to proceed with a greater degree of confidence.
3. Once the "Working Interest Owners" have agreed on the tract participation calculation parameters, the department can advise whether they are acceptable.
4. Include all relevant data with your proposal. The department will analyse this unit just as carefully as would any prospective "Working Interest Owner", and will require just as much technical information.

5. Point out any unusual characteristics of the unit and provide an explanation for any decisions made.
6. Avoid sending the department "committee mapping" that is inconsistent with previously submitted data used for other applications (e.g. lease continuation) by individual companies.