

UNITISATION

By Jean M. Matthews*

INTRODUCTION

From humble beginnings as an economic aid to secondary recovery in a single field, unitisation now embraces a wide spectrum of concepts: from relatively simple production sharing arrangements to a comprehensive regime for continual revision of participating interests, dealing with every facet of petroleum development and production.

Unitisation is the device used for the development of one (or more than one) petroleum reservoir as a single unit, where more than one person or group has a pre-existing interest in the reservoir, through production licence rights or land ownership.

In many ways, a unitisation arrangement is, as that definition suggests, no more than a specific kind of joint venture.

The distinctive characteristics of unitisation are, firstly, that parties with pre-existing rights to petroleum production in different geographical areas pool part (or indeed, all) of those interests into one enterprise in exchange for an interest in the whole enterprise; and secondly, that there is a mechanism for calculation of each party's participating interest in the unit enterprise.

The mechanics of participating interests are discussed in more detail later in this paper. But first, to understand how the concept of unitisation has expanded into the sophistication and complexities of the multi-field development that we see now in Australia, it is instructive to review the history of unitisation.

HISTORY OF UNITISATION

The Rule of Capture

The origins of unitisation lie in the United States of America, where ownership of minerals was almost always vested in the landowner.

Oil and gas have, of course, no respect for artificial boundaries of land ownership, but will migrate within the reservoir, towards a source of low pressure such as that introduced by the drilling of a well.

Thus, if one landowner sinks a series of wells close to the boundary of his property, overlying a reservoir which extends under adjoining land, the well will produce petroleum from both sides of the land boundary. It is easy to see that the adjoining landowner would be encouraged to drill a few wells on his side of the boundary. In the short term, both landowners may reap rewards for their efforts, but ultimately the recoverability of the petroleum would be ravaged by such unrestrained production.

This is indeed what occurred in the oil-rich states of America in the

* LLB (Hons), Corporate Lawyer, Adelaide.

Any views expressed in this paper are those of the author and not necessarily those of Santos Limited.

early part of this century. During that time the courts were called upon to consider the rights of adjoining landowners to subterranean reserves of oil and gas. I refer you to Michael Crommelin's paper to the 1986 Conference for an analysis of the decisions and of the Rule of Capture which developed.¹

The Rule of Capture was well described in the Texas case of *Brown v. Humble Oil & Ref. Co.*:

This rule gives the right to produce all of the oil and gas that will flow out of the well on one's land; and this is a property right.²

Crommelin and others have suggested that the Rule of Capture was based on an exaggerated view of the 'fugitive and wandering' characteristics of oil and gas, which were even compared to wild animals, '*ferae naturae*'.³ It is nonetheless true that petroleum is migratory in a way that, say, coal is not, and some judicial recognition of that fact if necessary.

The English courts, at least in the early years, took a different approach from their American counterparts and this is worth brief consideration. For those of us concerned with Australian law, it is after all more relevant to study the developments in English law, although in our field there is admittedly but little assistance to be found from the English courts — until the North Sea gas discoveries there was no oil and gas in England, nor indeed in most of the British Empire.

Nevertheless, the Privy Council was called upon in imperial times to consider cases from the outposts of the Empire, involving what would in the United States of America have been described as the Rule of Capture. The Privy Council avoided use of that term while considering the realities it represented, tending to find analogies with established property law on which to base its decisions.

In the 1899 case of *Trinidad Asphalt v. Ambard*,⁴ the Privy Council noted the migratory nature of pitch but managed to imply property law rights of support.

Whatever the result may be, rights of property must be respected . . . If the inhabitants of La Brea cannot dig their own pitch without invading their neighbours' rights, it is quite possible that the hope of reciprocal advantage and the apprehension of mutual liability may lead to some arrangement for their common benefit . . .

As Crommelin points out, this must be one of the earliest suggestions that the common law might not only permit but indeed encourage unitisation of petroleum deposits.

In *U Po Naing v. Burma Oil Company Limited*⁵ 'capture' was allowed, based on property law and an analogy with underground waters. In *Borys v. Canadian Pacific Railway Co.*⁶ both the safety of property law and the dangers of the Rule of Capture were avoided and the case was

1 [1986] *AMPLA Yearbook* 264.

2 (1935) 101 ALR 1393.

3 *Westmoreland & Combria Natural Gas Company v. De Witt* (1889) 130 Pa. 235; 18 Alt. 724; 5 LRA 731.

4 [1899] AC 594, 602–603.

5 (1929) 56 LR (Ind. App) 140.

6 [1953] AC 217.

decided on the basis of practicalities: that the right to work oil included the right to disperse associated gas.

The question of the applicability of the Rule of Capture therefore remained open under English law but was put to rest by legislation. The Petroleum (Production) Acts of 1918 and 1934 vested all petroleum deposits in the Crown and established the now familiar concessionary system that upon production at the wellhead under licence petroleum becomes the property of the licensee.

Growth of Unitisation

In the United States the disadvantages of the Rule of Capture were acknowledged in the 1907 case of *Barnard v. Monogohela Natural Gas Co.*:⁷ 'This may not be the best rule; but neither the Legislature nor our highest court has given us any better.'

Despite this implicit judicial suggestion that something should be done to counteract what 'may not be the best rule', it was not until the 1930s that the concept of unitisation achieved any acceptance, although it was formulated and indeed espoused in many quarters from the early 1920s. The Federal Oil Conservation Board reported in 1926:

The unit idea in producing oil is bound to win out because the natural unit is the oil pool . . . [it] means both efficiency in development and operation and the determination of equities among the owners.

Myers explains the delay in the implementation of unitisation arrangements in his characteristically forthright and colourful way:

The oil man, particularly of that day, was an individualist. Not only did he object to any government, whether state or nation, interfering with his business, but he was also loath to turn over the operation of his property to another company or individual designated as unit operator under the unitisation agreement . . . He preferred to 'git there fustest with the mostest wells'.⁸

Eventually economic necessity took hold — with its unparalleled ability to concentrate the entrepreneurial mind: by 1930 oil prices had fallen to 10 cents per barrel and the time was therefore, at long last, ripe for the individualists in the oil fields to embrace unitisation as a means of maximising economic recovery.

A few small units were formed for field development in the early 1930s; by 1940 several larger units for secondary recovery were to be found. Since then unitisation has become a widespread practice for field development.

After this slow and painful birth of unitisation in the United States, its adoption by England (and its North Sea neighbours) and Australia was a comparatively simple matter.

The regime of Crown ownership of petroleum, coupled with a licensing system, by its very nature overcomes the problems of disputed ownership, the concomitant Rule of Capture and, presumably, individualistic reluctance to surrender one's destiny to another.

7 (1907) 216 Pa. 362; 65A 801.

8 R.H. Myers, *The Law of Pooling and Unitisation* (2nd edn 1967) 21, 15.

More importantly in this last regard, the English system and the economic realities of the twentieth century oil industry have encouraged the use of joint ventures for petroleum exploration and development. Against this background, unitisation is as acceptable and almost as familiar as any other kind of joint venture.

COMPULSORY AND VOLUNTARY UNITISATION

Compulsory Unitisation

In 1940 the US state of Louisiana enacted a provision for compulsory unitisation for the purposes of gas reinjection, and in 1945 Oklahoma followed with statutory provision for compulsory unitisation in all appropriate circumstances. Most if not all American states have enacted similar provisions.

The various legislative regimes governing the North Sea gas fields empower the relevant government to require unitisation of fields that underlie permit or national boundaries.

The onshore Petroleum Acts of all States in Australia (with the exception of Tasmania) and the Northern Territory⁹ contain provision for compulsory unitisation as follows:

South Australia:	s.80c	New South Wales:	s.68
Northern Territory:	s.69	Western Australia:	s.69
Queensland:	s.61c	Victoria:	s.63

The sections vary in sophistication and detail. The South Australian section is among the briefest and reads as follows:

- (1) Where the Minister is satisfied that the area comprised in a petroleum production licence forms part of a field extending beyond that area and it is desirable for the purpose of securing economy and efficiency and the avoidance of waste that the field be worked as one unit, the Minister:—
 - (a) if the field does not extend into an area comprised in a petroleum exploration licence or petroleum production licence held by another licensee, may vary the terms of the licence by including therein additional land to which the field extends;

or
 - (b) if the field does extend into an area comprised in petroleum exploration licence or petroleum production licence held by another licensee, may, by notice in writing, served personally or by post upon the licensees, require the licensees to prepare and furnish him with a scheme for working and developing the field as one unit.
- (2) A notice under paragraph (b) of subsection (1) of this section shall specify the land in respect of which and the time within which the Minister requires the scheme to be furnished.
- (3) If a scheme is not furnished within the time so specified, or if the Minister does not approve a scheme furnished to him, the Minister may prepare a scheme and supply particulars thereof to each of the licensees who shall be bound by the terms of the scheme in all respects as if such terms were conditions of their respective licences.

⁹ The Mining Act 1929 governs petroleum exploration and production in Tasmania and does not address petroleum as compared with mining issues in detail.

Despite its comparative brevity, we can extract from the South Australian section the features common to the equivalent provisions throughout mainland Australia,¹⁰ that is to say under all the sections:

- it is anticipated that at least one production licence has already been granted;
- the minister may require the licensee to arrange a unitisation scheme;
- the minister may impose a scheme if none is furnished by the licensee or if the minister does not approve of the licensee's scheme;
- there is no power for a minister to impose a scheme without first giving the licensee an opportunity to do so.

In all mainland States (and the Commonwealth) except South Australia and Victoria, the Acts specifically address voluntary unitisation agreements, to the extent that such agreements are of no force and effect until approved by the minister. It seems that voluntary agreements in South Australia and Victoria do not require ministerial approval, but in any event all the Acts, whether within the unitisation sections or otherwise, give the minister considerable powers of direction over all field operations, and oblige individual producers to pay State royalties on their share of production. The minister's departmental advisers will therefore have notice, if not quite detailed knowledge, of unitisation arrangements as they proceed. Amendments to be proposed to the South Australian Act may have the effect of requiring *lodgement* of unitisation agreements with the Department of Mines and Energy.

South Australia and Victoria, together with the Northern Territory, also differ from the other States and the Commonwealth in that the compulsory unitisation provisions are limited in their application to fields within the State. The other Acts specifically address the issue of fields within the State that traverse State boundaries: the minister is empowered to require a licence within the particular State to submit a unitisation agreement for any field within the licence area which crosses the State boundary.

The underlying purpose of legislative requirements for unitisation is the avoidance of waste — waste of a resource belonging to the Crown, and of value as a source of royalty revenue, as a result of selfish recovery processes by those licensed to extract the resource.

Voluntary Unitisation

Avoidance of waste also underlies the compulsion to unitise voluntarily — i.e. waste of reserves which might not otherwise be extracted profitably or at all: 'In a sense, perhaps, all pooling is compulsory rather than voluntary since it is motivated by the compulsion of economic factors or of zoning or spacing regulations'¹¹ — or, in the Australian situation, of the limitations of licensing regimes and the threat of compulsory unitisation.

10 Section 59 of the Petroleum (Submerged Lands) Act 1967 (Cth) deals similarly with unit development.

11 H.R. Williams and Meyers, *Oil and Gas Law* (abridged edn 1986) 594.

I think it is true to say that the Australian experience has been entirely on the basis of voluntary unitisation, propelled by economic imperatives or convenience rather than statutory interference.

It is perhaps comforting to sense a legal continuity down the years, in the faint echo from 1899 of the Privy Council's 'hope of reciprocal advantage and apprehension of mutual liability' indeed leading to 'some arrangement for . . . common benefit'¹² in the 1960s and beyond.

TYPES OF UNITISATION

Benefits

The economic imperatives of today boil down to one incentive, cost benefits — although those benefits can of course take various forms:

- fewer wells may be needed to achieve the same recoverability;
- secondary recovery techniques may be more effectively planned;
- administration can be centralised;
- it may be possible to achieve reduced work obligations, exemptions from pipeline licensing requirements, and postponement of working less economic reserves without loss of licence.

Cross-boundary Reservoirs

Traditionally, the need to unitise arises where a field traverses the boundary between two or more land-holdings — or in the Australian arena, between two or more joint venture areas. The field may be within one State, or it may traverse State boundaries.

Where a field crosses a State boundary, normally two joint ventures are involved as well as two States. Nonetheless, one can hypothesise a coincidence of participants, and in such an event there would presumably still be a need for some form of unitisation to identify production from each State for the purpose of calculating State government royalties.

In Australia, these circumstances have not arisen extensively, but single -field unit developments are to be found for the Andree-Leleptian and Kurunda fields in South Australia (Big Lake field is dealt with as a unit within a unit under the Cooper Basin unit agreement), Brumby field on the South Australia–Queensland border, and in the Surat Basin in Queensland. Offshore, at least one joint venture makes provision for production sharing and for calculation of participation interests in anticipation of discovery of a field underlying more than one joint venture sub-area.

In these cases, the existing joint ventures govern geographic areas more extensive than the cross-boundary field. The unit arrangements for cooperative field development and production sharing are limited to the particular field; the existing joint ventures remain operative and the unit is a separate but not substitute joint venture.

The unit concept was applied differently in the Mereenie field in the Northern Territory, to effect an amalgamation of existing joint ventures

¹² *Trinidad Asphalt* case — *supra* n.4.

and replace them with one joint venture with a new but fixed interest for each participant in that joint venture, albeit with some limited provision for that recalculation in particular circumstances.

Multi-field Unitisation

The outstanding feature of the Australian experience of unitisation is multi-field unitisation. That is to say, the purpose is not to develop one field lying within two ventures as one unit but rather to develop as one unit a multiplicity of fields within a variety of joint ventures. It may be that each field lies completely within one joint venture area, but that together the fields constitute — or for convenience can be seen to constitute — one source of production. This form of unitisation was of course developed by the Cooper Basin Unit, and is expected to be followed by the South West Queensland Gas Project.

It seems to me that in Australia the term 'unitisation' is now generally understood to refer to unit development of a multi-field project. Single-field development is more generally referred to as 'production sharing' and the Mereenie situation is perhaps a special case. Nevertheless, each should be considered as a species within the unitisation genus, and each can lay valid claim to the title of 'unit'.

By the same token, there is no reason to believe that the categories of unitisation are closed: the uses to which the concept may be put are limited only by the imagination of petroleum engineers and the ingenuity of their lawyers.

Unidentified Reserves

Another aspect of the Australian experience with unitisation is its application to fields or reserves as yet unidentified, by provision for admission into the unit of new discoveries from time to time.

Traditionally, unitisation was seen as an appropriate vehicle for production of petroleum reserves which had already been discovered. Indeed, the early American promoters of unitisation particularly evangelised its benefits when primary recovery had been exhausted and secondary recovery methods were indicated. As we have seen, the first provisions for compulsory unitisation in the United States were limited to gas reinjection.

It is easy to see how the effects of the Rule of Capture significantly confused the rights of landowners at the time of secondary recovery. The technology might indicate that gas which had, perhaps, been extracted from a reservoir under one tract of land, should be reinjected into the same reservoir but through a well on an adjoining tract, causing oil to migrate from there to a well on the first-mentioned land.

It is even easier to see that a concept of unitisation is almost mandatory to cope with such a situation.

Once again, let me say that the licence system in Australia substantially avoids those potential difficulties. Nonetheless, it is a giant step, between limiting the ambit of unitisation to fields which have not only

been discovered but already produced, and using unitisation for the exploration of reserves as yet unidentified.

Unitised Zones

Unitisation quite clearly has particular relevance to gas developments, if only because of the need for treatment and the overwhelming advantage of a centralised treatment plant.

Just as oil and gas do not respect boundaries of land ownership or licence, of states or nations, neither are they conveniently arranged in separate fields. If the purpose of a unitisation is to produce gas, it may well not be necessary to unitise whole fields, but only to accept into the unit as unitised zones those geological structures in which gas, or gas associated with oil, is found.

METHOD OF UNITISATION

Once discussions between licence-holders have resulted in a decision in principle to unitise, the process of settling all the details begins. Inevitably, as in most areas of joint human endeavour, the normal practice is to establish a series of committees.

Management Committee

This will be the overall authority to define the form and content of the unit structure.

Its initial role will be to establish its own voting procedures. At this stage, of course, no dissenting party can be bound by any majority vote, as the committee has no legal or formal status, but there must of necessity be a commitment to consensus, and agreement to contribute against interim costs and the expenses of establishing a unit structure.

The management committee will define the terms of reference for other committees, receive recommendations from those committees and make final decisions on all issues. Its guiding principle will be overall benefit to the participants as a whole. This will require a clear understanding of the incentives behind the unitisation, and an acknowledgment of the need to balance, on the one hand, the natural desire of each participant to gain an individual benefit, against the reality, on the other, that unitisation may well be the only way to develop each participant's reserves and thereby produce any benefit from its holding.

Technical Committee

The principal task of this committee will be to gather and analyse information as to reserves, and to prepare models of methods of calculation of participating interests — as discussed more fully later in this paper.

Proposals for establishment of treatment plant, production facilities and delivery systems will also receive attention, depending on the stage of development of the reserves.

Accounting Committee

This committee will design methods for recalculation of interests and accounting procedures. It will also have input into issues of payment and default, sole risk and other provisions involving financial and tax matters.

Legal Committee

Documentation of the arrangement is the task of this group. It will also be involved in identifying issues to be addressed.

The US and UK models for documentation traditionally encompass at least two documents:

- a Unit Agreement which deals with issues of participation interests; and
- a Unit Operating Agreement to deal with operational issues such as arise in any normal joint venture agreement.
- Agreements specifically dealing with plant and other facilities may also be documented separately.

The Australian practice is to dispense with the distinction between a unit agreement and a unit operating agreement and to produce one unit agreement to deal comprehensively with all issues of participation and operations.

SPECIFIC PROVISIONS OF UNIT AGREEMENTS

In this part of the paper I propose to outline issues which will need to be settled in putting together the unit and which will form the basis of the unit agreement. These issues will apply, to a greater or lesser extent, in all types of unit.

The documentation to constitute a production sharing agreement for a single-field development will provide for the following:

- allocation of production from the field among joint ventures (and/or States);
- determination of voting interests and contribution to costs in accordance with that allocation;
- review of the allocation from time to time;
- agreement for cooperative development of the field;
- appointment of a single Operator.

Additional characteristics of a multi-field unit may be summarised as follows:

- Development and production of reserves takes place sequentially (rather than concurrently).
- All unit parties share in production in proportions established by the size of their interests in the reserves discovered in all joint venture areas, whether the reserves in their particular joint venture have yet been developed and produced or not.
- Calculation of participating interests will probably take into account

comparative costs of developing and processing the reserves within the respective joint ventures (sometimes called 'Go-it-Alone').

- Ownership of existing facilities is likely to remain with the joint venture parties, who will grant custody and control to the unit parties.
- Participating interests will be reviewed periodically in the light of emerging facts. Proportionate ownership of facilities already in place will probably survive these reviews, with consequent imbalances being compensated for by adjustment to further capital contributions or operating costs.

Participating Interests

As I have said, the distinctive characteristic of unitisation is the mechanism for calculation of each unit party's initial participating interest in the unit enterprise and for recalculation of that interest during the life of the unit.

The participating interest determines voting rights, entitlement to production from the unit as a whole and contribution to capital and operating costs.

Each unit party's participating interest will be calculated by reference to the proportion of petroleum in the field attributable to the joint venture of which that unit party is a member, multiplied by that party's percentage interest in the joint venture.

To calculate the petroleum attributable to each joint venture, the components that require resolution are (i) admission of reserves; (ii) criteria for calculation of reserves; and (iii) allocation of reserves.

Admission of reserves

Where the purpose of the unit is to develop the whole of the field, then the whole of that field, and all reserves discovered or to be discovered within the field, will be unitised or admitted to the unit.

Where the unit is to apply to unitised zones rather than the development of the field as a whole, it is necessary to define and agree what will be admitted to the unit, at its inception and during its life. Amongst the issues for determination are:

- whether gas discoveries or oil discoveries are to be admitted — if the purpose of the unit is gas production, presumably oil discoveries will not be admitted, but reserves of associated oil and gas must be addressed;
- whether all discoveries are to be admitted or only those which are economically producible at the time of admission;
- whether admission is limited to fulfilment of a particular sales contract; and
- whether substitutions are permissible once reserves have been admitted.

Calculation of reserves and criteria for calculation

Having ascertained what reserves will be admitted to the unit, the next step is to decide how those reserves are to be calculated for purposes of allocation among the joint ventures. A list of just some of the bases on which reserves can be calculated indicates the range of possibilities:

- gas/oil/hydrocarbon in place
- solution gas/associated gas
- deliverable raw gas
- deliverable sales gas
- proved/probable/possible.

The criterion for admission of reserves will not necessarily dictate a particular method of calculation. For example, the criterion for admission may be fulfilment of a particular gas sales contract, but allocation of the reserves admitted may just as well be on the basis of gas-in-place as of deliverable raw gas or deliverable sales gas, each with a different result. The parties will wish to consider all possible results to identify where the optimum overall benefit lies.

Whatever the types of reserves on which the participating interests are to be based — oil/gas, in place/deliverable, and so forth — the technical and management committees must decide the rules and guidelines for calculation of proved, probable and possible.

The rules established by the Society of Petroleum Engineers may be acceptable, or the unit parties may prefer to define their own criteria.

Where the unit is formed for a specific purpose, such as fulfilment of a particular sales contract, it may be advantageous to use criteria relevant to that contract, such as product specification, economic production and deliverability.

Allocation of reserves

In single-field units and where a field traverses the boundary of one or more joint ventures within the unit, agreement must be reached, on the basis of the foregoing analysis of the other factors, as to the proportion of production from the field to be allocated to each joint venture.

In a multi-field unit a geographical allocation will not arise (except if particular fields cross joint venture boundaries within the unit area), but in such units a simple allocation of reserves based on quantities alone is unlikely to reflect accurately the true contribution of each joint venture to the unit enterprise.

An accurate system will need to take into account such factors as deliverability from each reservoir, differing needs for secondary recovery procedures, quality differentials, distance from the treatment plant, or the proposed site thereof, and the change in value of money over the life of the unit — a present-worth evaluation of the reserves.

If there are significant differences between the various fields the analysis will be complex, requiring agreement among the parties on estimates for production rates, on a timetable for production, and on number and capability of wells.

To include a present-worth evaluation, the procedure additionally requires a prediction of future production rates to be made for each field, on an annual basis, and agreement on a discount factor to convert each year's estimated production to current value.

The main advantage of this system is that it brings together all the important variables into a single factor which is a valid approximation of the real contribution of each joint venture. The main disadvantage is the cost that complexity inevitably involves. Nevertheless, in any substantial unit enterprise a present-worth evaluation is likely to be prepared by the technical committee for use at least as a guideline in recommending participating factors — and possibly also by individual parties for their own analysis of their entitlements. Such an evaluation may be used as the sole basis for determining participation factors, or as one aspect of the determination.

To reflect accurately the contribution by each joint venture to the unit — and hence the financial contribution the parties will be required to make — a single participating interest may not be adequate. Various products will no doubt be produced from the various reserves: crude oil, condensate, natural gas, ethane, methane, LPG, and so forth. In a multi-field unit, those products will be produced in different proportions from different fields, and allocation of a separate participating interest for each product may well be appropriate. Further agreement will then be required as to which of the interests or combination thereof will establish voting rights.

Where private royalties are payable by joint venture parties, the approval of royalty-holders to the agreed allocation must of course be secured.

Where a field crosses a State boundary, allocation of production is similarly required, with the consent of both States, to calculate royalties payable to each State.

In practice, the technical and management committees will consider models of various permutations of different types of reserves and their allocation. Indeed, all relevant permutations should be considered, in the light of the basic purpose of the unit and the need for each unit party, on balance, to benefit from participation in the enterprise.

Participating Interests: Review and Adjustment

However accurate and detailed the calculation of initial participating interests, new information will arise as development of the unit enterprise proceeds. Quantities of hydrocarbons in place and their recoverability will be more accurately determined; in cross-boundary situations, the amounts properly to be allocated to each side of the boundary may need readjustment; and in all cases new reserves accumulations may be discovered.

Any and all of these factors will effect the validity of the initial participating interests. This inevitability and how to deal with it during the life of the unit should be addressed as comprehensively as possible at

the outset, by provision in the unit agreement for review and adjustment of the participating interests.

In a single-field or other small unit the parties may be content to abide by the initial calculation of participating interests, or they may make provision for a reasonably limited review and adjustment — for example, a recalculation of the participating interests by one independent expert at a specified arbitrary date on a specified basis of reserves calculation.

The more sophisticated the provision for review and adjustment of participating interests, the greater the accuracy but also the cost — and the greater the potential for disagreement and even litigation, as we have seen in recent times.¹³

The mechanics of recalculation for which the unit agreement should provide will include the following:

Frequency. The recalculation may occur at fixed intervals, say every two or five years, or the agreement may provide for triggering events such as the discovery of new reserves; the recalculation may be market driven, and based upon ascertainment of additional markets, or related to events under existing sales contracts. A combination of some or all of these criteria may be selected.

Retrospective/prospective. As far as I am aware, it is the usual practice in Australia for all unit calculations to be prospective.¹⁴ That is to say, all recalculated participating interests will apply only from the date of calculation; the parties are not required to make retrospective adjustments, as if the interests were recalculated from day one of the unit, in the light of knowledge at the date of recalculation.

Assets. The method of evaluation of assets should be specified. This will usually be the current cost of replacement. It is undesirable to change established interests in capital assets — capital gains tax implications might arise and established entitlements to income tax deductions and allowance could be disrupted. Thus, the unit agreement might include provision for participating interests in capital assets to remain unchanged, despite any recalculation of participating interests. Disproportionate contributions to operating costs which may thereby arise may be recouped by investment holdings or other counterbalancing payments.

Extent of Unit Activities

Traditionally, as we have seen, unit development tended to involve secondary recovery. The Australian experience has been to apply unit development to all production and indeed to appraisal. There is presumably no reason why future unit arrangements cannot encompass exploration activities also, subject to establishment of rights under exploration licences.

The unit agreement should address the extent of joint venture rights

¹³ *Crusader Resources N.L. v. Santos Limited and Others* (1990) 156 LSJS (SA) 420.

¹⁴ This is not necessary the case universally — see T.C. Daintith and G. Willoughby, *United Kingdom Oil & Gas Law* (1986) 1133 *et seq.*

to appraise and to develop non-unitised reserves in appropriate circumstances, together with provisions for indemnity if joint venture activity damages unit facilities or the reservoir, and vice versa.

OTHER PROVISIONS OF UNIT AGREEMENT

The determination of participating interests and their recalculation from time to time are the issues which distinguish a unit from other kinds of joint venture for petroleum production. The other provisions of a unit agreement will be similar to those addressed by any joint venture agreement, but many, though not all, of those provisions will require to be tailored to fit the unit arrangement.

Voting Procedures

Each party will have a vote equivalent to its particular interest — or a particular one where there are multiple participating interests. It is usual for each party to have an individual vote and not for voting to be by joint venture. Where one or more parties have interests through more than one joint venture, this may have an impact on the dynamics of voting power.

The management committee must agree on three voting issues for the management of the unit:

- (1) What constitutes a majority vote?
- (2) What matters may be settled by majority vote?
- (3) Will any matters require a unanimous or special majority vote?

As with any joint venture, the choice of what will constitute a majority vote — a simple majority or some higher percentage — may depend to some degree on the initial participating interests. That is to say, the parties with smaller initial interests will presumably wish to ensure that one or two of the major participants cannot carry all votes; and the major participants will not wish one or two very small participants to be able to block the voting.

The party who is to be operator will wish to see a higher than usual majority vote for removal of the operator, but the other parties will not wish that majority to be so high as to make the operator irremovable.

Appointment of Operator

The unit agreement should appoint an operator and define operator responsibilities and liabilities.

Management and Regulatory Matters

The unit agreement will establish at least two committees: management and technical. These will probably be a continuation of the steering management and technical committees, with the latter having a recommendatory role only.

The unit agreement will specify the matters on which the operator must seek unit parties' approval through the management committee; establish periods of notice for the calling of meetings; provide for voting without notice and other normal joint venture management details. It will also include provisions for sole-risk developments, insurance requirements, accounting procedures and audit, billing and payment methods, and settlement of disputes.

Specific provision may be desirable to deal with sole-risk joint venture projects when taken over by the unit, and to protect any royalty payable by joint venturers on unit production.

Life of the Unit

Is this to be limited by the life of a particular sales contract or by some other event, or will the unit continue indefinitely (subject to the Rule against Perpetuities)? Should prior provision be made for extension of the life of the unit, and if so on what basis?

Security

The parties' concerns will be, as with any joint venture, twofold: (i) legal entitlement to the petroleum — a 'bankable' interest; and (ii) preservation of the integrity of the unit — priority against creditors of a defaulting joint venture.

Legal interest in petroleum

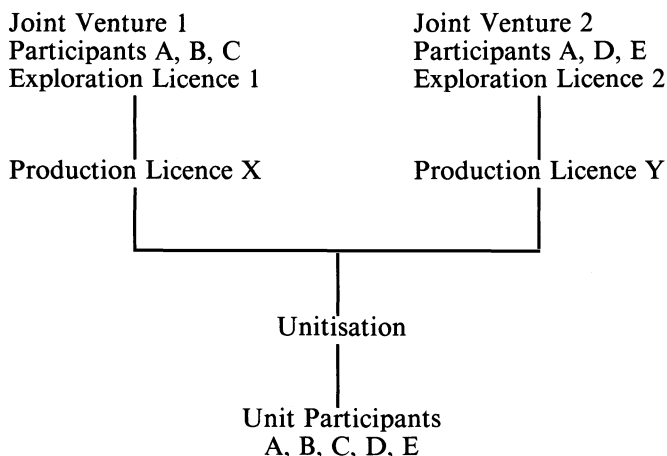
The unit parties — particularly those with no interest in the joint venture where a particular production licence is situated — will seek a legal, registered interest in all petroleum deposits in which the unit agreement gives them an interest.

It is beyond the scope of this paper to discuss the extent to which the various Petroleum Acts establish registration systems of legal effect. Suffice it to note that the legal right to petroleum arises under a production licence and thus all unit parties will seek to be noted as holders of all production licences to which unitised zones are subject.

The system which has evolved to respond to requirements of the various Petroleum Acts and the Income Assessment Act 1936 ('ITAA') is for the relevant joint venture parties to obtain the production licence and to grant sub-leases to all the unit parties (including those joint venture parties themselves) in respect of the relevant unitised zones.

The Petroleum Acts — and minimisation of capital gains tax liab-

ility¹⁵ — demand a continuity of interest upon conversion of exploration rights to production licences. Consider a two-field development where the family tree of entitlements will be as follows:



This clearly raises questions of continuity (or rather discontinuity) between the exploration licence held by A, B and C and any interest in Production Licence X which D and E might seek under the unit agreement.

Thus, production licences should be granted to joint venture parties only and sub-leases granted to the unit parties, taking advantage of s.160ZS of the ITAA, which, for capital gains tax purposes, deems a lease to constitute the disposal of an asset (that is to say, the lease itself) created by the lessor.

The ITAA gives no definition of 'lease', but if we can assume that a sub-lease of a production licence falls within the section,¹⁶ then there is no disposal by the joint venture parties of their production licence, and they retain their continuity of interest for capital gains tax purposes. There is, it is true, an acquisition by the unit parties, and where this acquisition postdates 20 September 1985, there may be future liability to capital gains tax, if the Unit Agreement postdates 20 September 1985.

Where the unit agreement predates 20 September 1985, reliance is placed on rights created by that agreement to the grant of sub-leases to characterise such sub-lease as pre-20 September 1985 assets.

15 Section 160ZZF of the Income Tax Assessment Act 1936 (Cth), ITAA, gives roll-over relief from capital gains tax liability upon (*inter alia*) conversion of exploration rights to production rights.

16 Although called a 'sub-lease', the rights granted to unit parties are perhaps more accurately leases of the interest created by the production title, whatever name that title is given under the relevant Act; furthermore, under s.160ZR, "lease" includes a sub-lease'.

Priority

The unit agreement will need to address the effects of default and the rights of non-defaulting parties to assume the interests of the defaulting party. Where the unit enterprise is a substantial undertaking, a system of cross-charges between unit parties is the recommended procedure.

Tax Implications

It is of course a matter for each unit party to assess its own taxation position. The unit is a joint venture not a partnership, therefore the unit itself is not a taxpayer; rather, the individual parties are taxpayers. For example, each party in a unit or joint venture has its own individual date of acquisition of interests in exploration or production licences for capital gains tax purposes.

Indeed, a party may have differing dates of acquisition for differing percentage interests. Certainly in the Cooper Basin, there has been more than one instance of a party disposing of a percentage interest in one or more joint ventures, and some time later reacquiring all or part of that percentage, either:

- by acquiring as it were the same interest back from its own transferee or from a subsequent transferee from that transferee; or
- by acquiring an interest which has a different pedigree altogether.

Also, continuity of an uninterrupted interest in a licence may be broken by a change in shareholding, pursuant to s.160ZZS(1) of the ITAA which permits the Commissioner to lift the corporate veil to look for continuity of 'majority underlying interests' in assets.

Whatever the individual situations, the aim of the unit agreement must be to retain the capital gains tax status quo.

In general, the drafters of any joint venture agreement should address the tax implications which may affect the parties, including those which arise on review and adjustment of participating interests and upon grant of production licences.

GOVERNMENT INVOLVEMENT

Finally, the parties to any proposed unit agreement must consider the constraints of the Trade Practices Act 1974 puts upon them, and should also consider the desirability of State government commitment to their enterprise by way of State agreement.

Trade Practices Constraints

These issues were canvassed comprehensively by Douglas Williamson QC as recently as the 1989 Conference.¹⁷ Suffice it for me here to note broadly that sales by joint venturers which would or might otherwise be in breach of s.45 — including s.45A (Price Fixing) — may be authorised by the Commission under s.88(3)(a) on the basis of 'public benefit'.

Following a review of the authorisations given in relation to sales of

17 [1989] *AMPLA Yearbook* 39.

gas and crude oil and the not insignificant conditions placed upon them, Williamson concluded:

As a final point, it is respectfully suggested that there is a need for the Commission to be ever mindful that there are small and less powerful producers as well as the large and more powerful ones, that there are powerful buyers as well as weak ones, and that there are substantial benefits to the community in the smaller producers being able to join with the larger ones in the cooperative marketing and pricing of their mining and petroleum products.¹⁸

One cure for the tribulations of the Trade Practices Act is for the unit parties to secure specific authorisation or approval of their sales contracts by State or Territory Act or regulation as permitted by s.51(1) of the Trade Practices Act in relation to ‘any act or thing’ ‘done in the State’ or Territory.

Section 51(1) is not without its pitfalls and grey areas; these have been canvassed by Williamson,¹⁹ including the reference by the Trade Practices Commission to the ‘purported’ exemption under s.51(1) offered by s.16 of the Cooper Basin (Ratification) Act 1975 (SA).

Government Commitment

There is a long history in Australia of agreements between State governments and parties to major projects, ratified by statute, to establish and enshrine special rules for those projects.²⁰ In South Australia these agreements are known as ‘indentures’ — but not, I understand, in other States, where ‘state agreement’ or ‘project agreement’ are the accepted terms.

Once the project parties have entered into such an indenture with the State government, the indenture is ratified by the Parliament by ratification Act in order to:

- validate any provision of the indenture which would otherwise be inconsistent with or constitute an amendment to State laws;
- prohibit government actions inconsistent with the indenture, and prevent its amendment other than by a subsequent Act.

The Cooper Basin (Ratification) Act 1975 (SA) (‘CBR Act’) has been described as ‘arguably the most effective example of ratifying legislation ever seen in Australia’.²¹ It and its companion Act, the Stony Point (Liquids Project) Ratification Act 1981, are certainly the only examples to date of ratification Acts for unit development of petroleum reserves.

As we have seen, the CBR Act ‘purported’ to authorise proposed sales agreement (together with the Unit Agreement and the indenture themselves) for the purposes of the Trade Practices Act. Importantly, the CBR Act also provides:

- the form (and term — 31 rather than 21 years) of production

18 Ibid. 87.

19 Ibid. 58–60.

20 Warnick’s paper on the Roxby Downs Indenture in [1983] *AMPLA Yearbook* 33 provides a brief legal background to such agreements, with references for further study.

21 Ibid. 36.

licences to be granted to joint venturers within the unit and the form of sub-lease to the unit parties;

- that the whole unit area is treated as one for purposes of setting licence fees off against royalty, for purposes of work schedules, and for the operation of pipelines without licence;
- that no State charge inconsistent with the indenture will be levied, and that royalty shall be calculated in accordance with the indenture.

Other benefits conferred by the indenture itself include:

- grant of land at Moomba, upkeep of certain roads by the State, and continued zoning for petroleum production and treatment;
- the deeming of buildings, plant and equipment at Moomba to be chattels;
- exemptions from stamp duty;
- a formula for calculation of wellhead value for purposes of royalty calculation.

As I have mentioned, the CBR Act should be read in conjunction with the Stony Point (Liquids Project) Ratification Act 1981 (SA) which dealt with the liquids pipeline between Moomba and Port Bonython, then called Stony Point, and the terminal facilities at Port Bonython.

CONCLUSION

If it is true to say that there has been limited adoption of unitisation in Australia, I think this reflects the small number of cross-boundary accumulations or market-source opportunities that have arisen, rather than reluctance to apply the tool of unitisation. On the contrary, it seems to me that the tool has not only been grasped but manipulated with ingenuity to deal with a variety of factual and geological situations.

Indeed, the Australian experience with unitisation has been profound in its effect on the cooperative development of Australia's major onshore petroleum recovery area to date and I am certain that it will be applied in one form or another to future major production venturers.

This paper has sought to describe the expansion of the concept of unitisation from production sharing in a single field to cooperative development of particular geological zones, in discrete deposits, involving multiple interests, two-tier licensing and government support; and to provide a checklist of the fundamentals of unitisation to whet the appetites of those of you whose ingenuity will, in the fullness of time, no doubt further enlarge this area of law and practice.