COMMONWEALTH AND STATE CONTROLS OVER URANIUM EXPLORATION AND PRODUCTION[1]

By R. D. Nicholson

> . . . those who speak ill of the metals and refuse to make use of them, do not see that they accuse and condemn as wicked the Creator Himself, when they assert that He fashioned some things vainly and without good cause, and thus they regard Him as the Author of evils, which opinion is certainly not worthy of pious and sensible men.[2]

On 25 August 1977, the Prime Minister of Australia announced that his government had decided to permit "further development of uranium under strictly controlled conditions."[3] That decision implies the use of legal controls to achieve chosen goals for the management of uranium as an energy resource. It reflects the choice of certain values to be accomplished by a resource management regime through legal controls. It envisages the use of legal controls to both promote and control, at one and the same time, the mining of this natural resource. The "wide-ranging debate inside the Parliament and in the public arena"[4] which preceded the decision, demonstrated that the issues familiar to Agricola, the author of the first classic text on mining quoted at the outset of this paper, continue to require debate in a modern context.

The purpose of this paper is to examine the legal controls now extant in Australia as a result of the Commonwealth Government's decision and resulting Commonwealth and State legislation.

1. URANIUM IN AUSTRALIA

Uranium derives from crude ores containing uranium oxide (U_3O_8) which is processed out of the ores into a concentrate ("yellowcake") of approximately 85–90 per cent or more U_3O_8. The most important primary uranium mineral is uraninite, known as pitchblende and resembling coal. Pitchblende may be found with other primary uranium minerals such as brannenite, itself an association of oxides of uranium, titanium, thorium, yttrium and calcium. Uranium minerals can be detected by the presence of bright yellow and orange secondary minerals such as anturite and by their radioactivity, detectable by a geiger counter or a scintillometer.[5]

There is nothing distinctive in the nature of the mining operation necessary to extract the ore bearing uranium. Techniques used are identical with those used in mining other ores and may be open-cut or underground depending on the depth of the ore body and the amount of material overlying it.[6] Most of the ore discovered in Australia could be mined by open-cut methods.[7]

The nature of the mineral, however, does require distinctive care to be taken in the mining operation. Uranium contains fissile atoms.[8] When atoms of the element are split apart (that is, undergo fission), it gives off energy in the form of heat and gamma radiation.[9] Dangers arise during mining because the breaking up of the ore facilitates release of radon gas, a decay product of the radium in the ore and the principal radiation hazard in uranium mining. Other radiation hazards from the ore also necessitate dust control and limited exposure for the miner.[10]

The characteristics of uranium which give rise to these dangers are the source of its importance as well as the necessity for legal controls on its mining and usage. Uranium is an important mineral because it is a source of energy (the energy resulting from the fission process occurring in a nuclear reactor being known as nuclear

energy). The process by which uranium is converted to nuclear energy is known as the nuclear fuel cycle and involves the following steps:

herein described as "the utilisation cycle"

- . . mining the ore
- . . milling to yellowcake
- . . conversion to gas (uranium hexafluoride)
- . . enrichment (boosting the proportion of uranium — 235)
- . . fabrication (conversion to uranium dioxide powder in the form of pellets for use in fuel rods)
- . . reactor operation
- . . fuel reprocessing
- . . fuel recycling
- . . waste disposal[11]

The events which attract the application of laws to uranium are therefore:

exploration
mining
milling to yellowcake

Employment in the utilisation cycle within Australia

Export for application of utilisation cycle overseas

Uranium has the potentiality to be a more effective energy source than known fossil fuel reserves if appropriate nuclear reactors are utilised.[12] The predicted substantial depletion of world reserves of oil and gas by the end of this century increases the potentiality for uranium as a non-renewable energy source which may only be matched by the development of renewable energy sources such as solar energy.[13]

Facts relevant to an understanding of the legal controls on uranium are the size, ownership and location of the known Australian deposits of uranium. These are detailed in the table at the end of the paper. It will be noted from the map that major discoverings have been made within the jurisdiction of the Northern Territory. It should be noted also that no discoveries have occurred off-shore.

Finally, it should be said that Australia's uranium resources constitute 27.1 per cent of the world's "reasonably assured resources" up to United States $15.00 per pound of U_3O_8 but only nine point two per cent of the world's total "reasonably assured resources" and "estimated additional resources". The comparative respective figures for North America are 41.8 per cent and 57.1 per cent.[14]

2. FEDERALISM AND URANIUM

The Commonwealth of Australia was formed on the first day of January, 1901, with a written constitution established by an Act of Parliament of the United Kingdom.[15] The Commonwealth so formed resulted from the people of the colonies of New South Wales, Victoria, South Australia, Queensland, Tasmania and Western Australia, all settled or founded between 1788 and 1836, being "united in one indissoluable Federal Commonwealth".[16] The written constitution vests in the Commonwealth certain powers exclusively[17] or which, by their nature, are exclusive;[18] it lists those powers on which the Commonwealth may make laws[19] and prescribes that when a law of a State is inconsistent with a law of the Commonwealth, the latter shall

prevail, and the former shall, to the extent of the inconsistency, be invalid.[20] Included among the Commonwealth's powers are powers potentially relevant to mining such as those relating to trade and commerce with other countries, and among the States,[21] taxation,[22] bounties on the production or export of goods,[23] the naval and military defence of the Commonwealth and of the several States,[24] foreign corporations, and trading or financial corporations formed within the limits of the Commonwealth,[25] external affairs[26] and conciliation and arbitration for the prevention and settlement of industrial disputes extending beyond the limits of any one State.[27]

Sir Kenneth Bailey has described this constitutional framework, with the exception of the territories' power, as leaving the development of Australia's natural resources to the residual and continuing responsibilities of the States.[28] However, he emphasises the point that effective development of those resources will require co-operative action by all levels of government — federal, state and local.[29] The result is that an assessment of legal controls on uranium requires an examination of Federal and State law and a recognition of their interdependence. The accidental occurrence of the majority of Australia's reserves within a Federal preserve (the Northern Territory) can be seen to strengthen the hand of the Commonwealth in determining the nature of the legal controls generally applicable.

Australia is not alone in having dual federal/state controls of uranium mining. The North American reserves lie within the federal system of the United States of America and the quasi-federal system of Canada.[30] The lesson for Australia from the pattern of legal controls in these similar federations would appear to be that those controls must be sought at both the federal and state (or provincial) levels and will operate in combination.

3. COMMONWEALTH CONTROLS IN STATES AND TERRITORIES

A. Exploration and Mining

(1) Atomic Energy Act 1953 (Cth)

Federal control over uranium and the mining of it was first asserted by the Atomic Energy (Control of Materials) Act 1946 (Cth). Three reasons have been given for this initiative by the Commonwealth: the initial discovery of uranium in a federal territory, the direct association with defence purposes of fissionable materials and the international aspects of the marketing of fissionable materials and the development of nuclear research and technology generally.[31] After amendment in 1952,[32] the legislation was replaced by the Atomic Energy Act 1953 (Cth), which became the Atomic Energy Act 1953–1973 (Cth). Part III of that Act substantially repeated the provisions of the 1946 and 1952 Acts. Acts 31 and 182 of 1978 implemented amendments consequent upon the Government's decision with respect to uranium.

Development of this recent legislation can be traced from the "Memorandum of Understanding" concerning the Ranger deposits issued on 31 October 1974 together with a Ministerial Statement relating to "rational development of uranium resources in the Northern Territory". The agreement stated that in view of disallowance by the Senate of the Atomic Energy (Prescribed Substances) Regulations 1974 (Cth), the Government had made arrangements to mine uranium through the Atomic Energy Commission. The Commission would finance 72½ per cent of costs with Ranger Uranium Mines Pty Ltd (formed by Peko Mines Ltd and E.Z.) contributing 27½ per cent. The other seminal influence on recent enactments

was the decision that an inquiry be conducted in relation to the environmental aspects of the proposed development of the Ranger deposits. The inquiry, established pursuant to s.11(1) of the Environment Protection (Impact of Proposals) Act 1974 (Cth), by an instrument published on 16 July 1975 in the Australian Government Gazette, was chaired by Mr. Justice Fox and became known as "the Fox Commission". It presented its First Report on 28 October 1976 and its Second Report on 17 May 1977.

In introducing the first 1978 Bill, the Minister for National Development stated that the consequence of the Government's decision that the development of the Ranger deposits would proceed on the basis of the Memorandum of Understanding was that the Atomic Energy Act would remain as the legislative basis for the development and the Atomic Energy Commission would be given any additional powers to enable it to participate in the joint venture. However, the Government proposed to broaden the constitutional basis of the Act to take account of the Fox Commission's criticisms that the Act was enacted largely with defence considerations in mind.[33]

The controls in the Act are exercisable basically with respect to prescribed substances which are defined as:

> (a) uranium, thorium, an element having an atomic number greater than 92 or any other substance declared by the regulations to be capable of being used for the production of atomic energy or for research into matters connected with atomic energy, and
> (b) any derivative or compound of a substance to which paragraph (a) applies;[34]

"Atomic Energy" is defined as:

> any form of energy released in the course of nuclear fission, nuclear fusion or other nuclear transmutation.[35]

Controls relevant to the exploration for and mining of uranium are contained in Part III of the Act. No longer is Part III based on the defence and territory powers alone. Section 34(1) in its new form provides that the powers conferred by the Part (including the power to make regulations for the purposes of s.38) shall, subject to s.38(4), be exercised only for purposes related to the defence, trade and commerce, external affairs, Territories and other powers of the Commonwealth.

With this attempted constitutional reach behind it (the success of which would require an examination beyond the scope of this paper),[36] the Act vests the Minister with powers to make regulations. Those powers include the power to make provision for and in relation to regulating or controlling the working of minerals from which, in the opinion of the Governor-General, a prescribed substance can be obtained as well as its acquisition and transportation.[37]

In addition, the Minister may prohibit such activities except in accordance with a licence,[38] or grant exemptions from the regulations,[39] or grant or refuse licences upon conditions and to suspend or revoke such licences.[40]

Balanced against these Commonwealth powers are provisions limiting them in the interests of the States. Where a person applies for a licence in respect of anything to be done in a State, the Minister is obliged to grant the licence unless he considers it necessary or desirable to refuse to do so for a purpose related to the defence, overseas trade or commerce of external affairs of the Commonwealth.[41] Furthermore, neither s.38 nor the regulations made under it are to be construed as intended to exclude or limit the operation of any provision of a law of a State or Territory that is capable of operating concurrently with the section and the regulations.[42]

Further controls imposed by the Act are a requirement on exploration for notification of discovery of a prescribed substance[43] and powers in the Minister to obtain information,[44] to enter land to remove samples[45] and to require delivery of prescribed substances[46] (subject to a right of compensation to owners on Commonwealth acquisition of a prescribed substance or mineral or, in the latter two cases, to persons suffering loss or damage from Commonwealth action).[47] Offences are created for non-compliance with the Part or with regulations under section 38.[48]

Although not controls *per se*, the provisions for establishment of the Atomic Energy Commission and the authorisation of persons or joint ventures to carry on mining operations for prescribed substances, on behalf of or in association with the Commonwealth have been translated into effective controls by utilisation of them as the means to implement the Ranger Agreement. Section 41 sets out the powers of a person so authorised (subject to conditions or restrictions specified in the authority) and the Act now states that, except as provided by the regulations, the section itself does not exclude or limit the operation of State or Territory law capable of operating concurrently.[49] Additional sections now prescribe the conditions on which such an authority may be revoked, varied[50] or assigned.[51] In the case of the authority granted to the Ranger Uranium Project, the conditions or restrictions in the authority relate to its duration (21 years), environmental requirements, the provision of data to the Minister and Aboriginal land rights. The environmental requirements relate to staffing and environmental, control of water, atmospheric pollution control, technology, blasting, sulphur stockpiles, waste rock dump, vegetation protection, monitoring and research.[52]

Leaving aside the research functions of the Atomic Energy Commission, its principal functions are extensive and extend to functions related to exploration and mining.[53] These functions may be performed only for ensuring the provision of uranium or atomic energy for the defence or other purposes of the Commonwealth and the provision of uranium to overseas countries or otherwise as permitted by the Territories or incidental powers of the Commonwealth.[54]

Commonwealth controls prescribed by the Atomic Energy Act 1953 (Cth) have the following features:[55] they are concurrent with State and Territory mining codes; they are limited by the reach of Commonwealth power but exploit it to the full; they assert control but not ownership of uranium in the States; they are incomplete in the sense that a State mining code is a complete code; they exhibit a patchwork quality resulting from the decision to continue to use the Atomic Energy Act 1953 (Cth) as the vehicle for control; they exhibit the tendency to anticipate the Commonwealth itself as having an active role in exploration and mining as well as control. It follows from the form of these controls that challenges to action under them may be based in appropriate circumstances, in the case of States and Territories, on the ground that action is *ultra vires* the Act and, in the case of States, that the relevant provision of the Act is unconstitutional. The Act opens the way for arguments on applications within State and Territories on whether particular provisions of State or Territory mining codes are inapplicable due to their incapability of concurrent operation with s.38 or regulations under it or s.41. Challenges to compliances with State mining codes may also be based on an argument that a particular requirement is inconsistent with the Commonwealth control and is invalid, not being saved by the special provisions in s.38(5) in favour of the States.[56]

It should be added that in appropriate defence circumstances, the Common-

wealth has power to assert greater control by declaration of a restricted area, being an area of land or water, Commonwealth or State, in which prescribed substances exist.[57]

Protective provisions exist with respect to information supplied to contractors[58] and works carried out for the Commonwealth falling within the approved Defence Projects Protection Act 1947 (Cth).[59]

(2) Environmental Protection (Impact of Proposals) Act 1974 (Cth)

It has been seen already that the Fox Commission on the Ranger deposits was established by authority of s.11(1) of the Environment Protection (Impact of Proposals) Act 1974 (Cth). The potential application of that Act to mining, including mining of uranium, is a matter which must not be overlooked in assessing Federal controls potentially relevant to such mining. This is not the place to analyse this Act and, indeed, that has been done elsewhere.[60] Nevertheless, its scope should be noted to make apparent its potential relationship to mining of uranium.

The first point to note is that the Act is not limited in its application to Territories and extends to the States. Its constitutional validity, although open to further challenge, has been upheld by two judges of the High Court.[61] Furthermore, the High Court has found that the Minister of Minerals and Energy was not precluded by the scope and purpose of the Customs Act 1901 or the Customs (Prohibited Exports) Regulations in having regard to environmental aspects of mining (by considering the report of an inquiry made pursuant to s.11(1) of the Environmental Protection (Impact of Proposals) Act 1974 (Cth) in considering and determining an application for approval in writing of export of minerals and substances mined from Fraser Island).[62] The Act has therefore a legal base that necessitates its careful consideration in relation to uranium mining even though it is not an Act specifically directed to mining.

The object of the Act is enacted, uniquely, as part of the Act. It is to ensure to the greatest extent practicable that matters affecting the environment "to a significant extent" are fully examined and taken into account in and in relation to:

(a) the formulation of proposals;
(b) the carrying out of works and other projects;
(c) the negotiation, operation and enforcement of agreements and arrangements (including agreements and arrangements with, and with authorities of, the States);
(d) the making of, or the participation in the making of, decisions and recommendations; and
(e) the incurring of expenditure,

by or on behalf of, the Australian Government and authorities of Australia, either alone or in association with any other government, authority, body or person.[63]

These matters extend to matters of those kinds arising in relation to financial assistance granted, or proposed to be granted, to the States.[64] These objects are sought to be attained by administrative procedures directed to the supply of information to the Minister to enable him to assess the need for an environmental impact statement, the preparation of such statements or the holding of an inquiry pursuant to s.11(1) whether or not an environmental impact statement has been furnished.[65] The outcome of these procedures is that the Minister must take into account the resulting statement or report.[66]

An examination of the Administrative Procedures will show the scope of the information which must be made available in relation to a project[67] and examination of the Reports of the Fox Commission is an example of the information required for a uranium mining proposal.

(3) Environmental Protection (Nuclear Codes) Act 1978 (Cth)

The fine point of balance between Federal and State controls on uranium mining has been reached with this Act, assented to and operative (by authority of section 2) on 9 June 1978. The Act, following the Environment Protection (Impact of Proposals) Act 1974 (Cth), contains a statement of its purpose, namely:

> to make provision, within the limits of the powers of the Parliament, for protecting the health and safety of the people of Australia, and the environment, from possible harmful effects associated with nuclear activities in Australia . . .[68]

"Nuclear activities" includes mining (whether by underground or surface working) or recovery of any prescribed substance of any mineral containing a prescribed substance.[69] "Prescribed substance" is defined in the same terms as in the Atomic Energy Act 1953 (Cth) referred to above, and so includes expressly uranium.[70]

However, it is not the provisions of the Act that must be observed in uranium mining but the provisions of any code made under it and applicable to the jurisdiction in which the uranium mining is to take place. There is a marked distinction drawn between the application of the Act to Federal Territories and to States, but it is potentially applicable to both within its terms.

The Act makes provision for formulation of proposed codes of practice for regulating or controlling nuclear activities in Australia in consultation with the appropriate Minister of each State and the Northern Territory.[71] After opportunity for public comment,[72] and subject to the above consultative process,[73] the Governor-General may make an order approving a code of practice,[74] although the order is subject to notification and disallowance.[75] With respect to "nuclear activities", the code of practice may specify standards to be observed, practices and procedures to be followed and measures (including measures for and in relation to the restoration of the environment from the effects of nuclear activities) to be taken with respect to nuclear activities; for achieving those standards; for prohibiting and licensing a nuclear activity; for directing persons for the purposes of the code and granting exemptions from it; and for the making of special provision for the protection of the health and safety, and the training, examination and certification, of persons who because of their work or professional activity are involved in nuclear activities.[76] The potential effect of a code on mining uranium could be significant in terms of management of the mining process.

The making of the code does not of itself ensure its application. Regulations must be made to secure the observance of and carrying out or giving effect of it in whole or part in a State or Territory. However, no such regulations may be made unless the Governor-General is "of the opinion that the laws of a State or Territory do not make provision for regulating or controlling nuclear activities in that State or Territory in the manner prescribed by the code" or do so only in part.[77]

Furthermore, such regulations cannot be made with respect to a State unless the Governor of the State has requested the Governor-General to so act.[78] Powers for the Governor-General to make orders in emergencies are similarly limited in relation to a State by requiring a request from the State Governor as a precondition of exercise of the power.[79]

In introducing this new legislation, the Minister for Environment, Housing and Community Welfare said that the first step involved at arriving at approved codes of practice would be initial drafting by the appropriate Commonwealth department, for example, Department of Health for health codes, Department of Transport for transport codes, Department of Environment, Housing and Community Development

for general environment protection codes.[80] This gives some idea of the areas to be covered by the codes.

The Commonwealth Department of Health has published already a *Code of Practice on Radiation Protection in the Mining and Milling of Radioactive Ores 1975*. The code establishes standards for the protection of miners and mill workers and for members of the general public. It requires the mine manager to institute a comprehensive health surveillance and monitoring programme within the mine and mill area and to ensure that exposure of workers to radiation and radon are kept below specified maximum permissible levels. It also contains controls on dusts and effluents.[81] Codes such as this could be a source of detailed controls but it is probably a fair prediction that the States will not, through their Governors, request the application of any codes to their jurisdictions.

B. Milling, Treatment and Utilisation

The legislation already reviewed is also the source of legal controls on milling, treatment and utilisation. In the absence of production of nuclear energy in Australia,[82] prime legal concern is directed, however, towards milling to produce yellowcake for export overseas. It is therefore very early days in terms of legal controls on the utilisation cycle.

The power of the Minister under the Atomic Energy Act 1953 (Cth) to make regulations extends to production, treatment, processing, possession, storage, use or disposal of a prescribed substance.[83] This power extends, like the power over the working of minerals, to requiring a licence to be in force with respect to those activities,[84] and is limited by the provisions in the interest of the States already discussed.[85] The power to declare an area a restricted area is also one which extends to area in or near which are carried on operations in connexion with the production or treatment of prescribed substances or in connexion with atomic energy.[86]

The functions of the Atomic Energy Commission, limited as discussed to certain constitutional powers,[87] extend to the undertaking (or arranging with other persons to undertake) treatment of uranium and minerals found in association with uranium, the supervision of activities of persons treating or selling uranium and those minerals, the co-operation with State authorities in matters associated with the treatment, use or disposal of uranium or associated minerals, to construct and operate plant and equipment for the liberation of atomic energy and its conversion and to sell or otherwise dispose of materials or energy produced as a result of those operations.[88] The Commission has enormous potential to play a role in control and supervision of the milling of uranium to yellowcake and the utilisation cycle.

In the Environment Protection (Nuclear Codes) Act 1978 (Cth), "nuclear activities" is defined to include, in addition to mining, production of Prescribed Substance, milling, refining, treatment, processing, re-processing, fabrication, enrichment, storage, handling, transportation, possession, acquisition, abandonment or disposal of that substance or associated minerals, as well as their use in the production of nuclear energy and incidental operations.[89] All that has been said about this Act earlier therefore has application at these points of the nuclear cycle.

C. Export

(1) Sale

Both the regulations which may be made by the Minister under s.38 of the

Atomic Energy Act 1953 (Cth)[90] and the matters to which Codes of Practice may relate under the Environment Protection (Nuclear Codes) Act 1978 (Cth)[91] extend to the "acquisition" of a prescribed substance and, in the latter case, associated minerals. Acquisition by sale is the normal means of disposal for export so that the regulations and codes, when made, would require examination for their application at this point.

Although the Fox Commission recommended that a uranium marketing authority be established,[92] the Minister for Trade and Resources has announced that in the present situation, the use of the Customs (Prohibited Exports) Regulations in relation to uranium will continue for the time being.[93] A uranium marketing authority may be established later but only after consideration of the legal implications of foreign antitrust laws.[94]

With respect to the need to negotiate sales contracts in a manner that will not attract the application of foreign antitrust actions, reference should be made to Ryan, *Impact of Overseas Antitrust Laws upon the Marketing of Mineral Exports* (1979) 2 A.M.P.L.J. p.121, and to the Foreign Antitrust Judgments (Restriction of Enforcement) Bill 1979 (Cth).

(2) Authority to Export

Of all the Commonwealth's powers relevant to uranium mining, potentially the most significant is the power to approve or disapprove exports of uranium. So long as uranium is mined for export, the Commonwealth has the final say on whether a mining operation for uranium, even in a State, is to have ultimately any value.

Pursuant to the Customs Act 1901 (Cth) s.112 and the Customs (Prohibited Exports) Regulations 1958 (Cth), the export of minerals and substances derived in the course of the processing or treatment of such minerals is prohibited unless there is produced to the Collector of Customs the approval in writing of the Minister for Trade and Resources or an authorized person to the exportation of the goods.[95] Under other regulations made under the same Act, the import of radioactive substances requires like approval.[96] It has been seen already that in granting such approval, the Minister may have regard to the environmental aspects of the mining and other operations for the purpose of producing the uranium.[97]

The Minister has outlined the factors relevant to the exercise of his discretion as: completion of environmental procedures, compliance with the Government's foreign investment policy, the quantities of uranium being exported at any one time, whether the export contracts contain appropriate terms and conditions consistent with Australian nuclear safeguards policy, the duration of the contract, the method of shipment of uranium, the price payable for it, the manner and currency of payment and the use to which the uranium is to be put by the purchaser.[98] The Minister has given clear notice that "uranium producers will accordingly need to seek the approval of the Minister before making any firm offers or entering into any legal commitments" and that the Government will maintain "strong regulation and control over uranium exports".[99]

The result is that a control taking legal effect with respect to the product of uranium mining becomes a control to be considered as a precondition to commencement of mining, with potential to shape the manner in which that mining takes place.

It should be noted that in the announcement by the Minister for Trade and Resources on 15 December 1978, that the number of minerals subject to export control will be reduced significantly, it was stated that controls on uranium and other

nuclear materials will continue in view of the Government's commitment to strictly control the export of these materials.[1]

(3) Safeguards Requirements

International controls for the establishment and maintenance of safeguards on mined or treated uranium ore on which Australia relies are fourfold:[2]

1. the non-proliferation Treaty ("Agreement for the Application of Safeguards in connexion with the Treaty on the Non-Proliferation of Nuclear Weapons" between Australia and the International Atomic Energy Agency signed in Vienna on 10 July 1974);
2. the application of International Atomic Energy Agency safeguards in all customer countries;
3. bilateral agreements with customer countries containing safeguard requirements;
4. participation in multilateral efforts to strengthen safeguards and the non-proliferation regime.

It is on work in connexion with these controls that Mr. Justice Fox is presently engaged.[3]

The Minister for Foreign Affairs has announced that bilateral agreements with respect to nuclear safeguards have now been concluded with Finland[4] and the United States[5] but that the agreement with Britain is delayed due to common market considerations.[6] The safeguard conditions in the concluded agreements are:

1. an undertaking that nuclear material supplied by Australia will not be diverted to military or explosive purposes;
2. the application of International Atomic Energy Agency (IAEA) safeguards, which provide an international check against diversion of material;
3. fallback arrangements to ensure continued safeguarding of nuclear material should IAEA safeguards for any reason cease to apply;
4. a requirement for Australia's prior consent to any retransfers, to ensure that uranium supplied by Australia cannot be re-exported unless we are satisfied as to the ultimate destination and as to the controls that would apply;
5. a requirement for Australia's prior consent for high enrichment or reprocessing of material supplied by Australia. This ensures that these operations can only take place if Australia is fully satisfied about the arrangements and conditions. This effectively reserves our position on reprocessing, as we have said we wish to, pending the outcome of international studies, including INFCE (International Nuclear Fuel Cycle Evaluation);
6. provisions ensuring that adequate physical security will be maintained, to guard against theft or other illegal use of nuclear material by groups or individuals;
7. provisions for consultations to ensure the effective implementation of the agreement;
8. all these safeguards and controls to cover nuclear material derived from Australian uranium so long as it remains in a form relevant from the point of view of safeguards;
9. a sanctions Article acknowledging Australia's right to suspend supplies and to require return of material in the event of detonation of a nuclear device, failure to comply with IAEA safeguards or breach of the agreement;
10. arbitration procedures for the settlement of disputes;
11. an Article on co-operation in the peaceful uses of nuclear energy.[7]

These provisions would appear to give a clear indication of the type of conditions which the Minister for Trade and Resources looks for in export contracts on a party to party basis.

D. Fiscal Structuring

Other Commonwealth controls relevant to the structuring of ventures to mine and process uranium lie beyond the limitations of this paper but it should be noted that they include exchange controls, income tax laws and foreign investment policies.

4. COMMONWEALTH CONTROLS IN TERRITORIES

A. Ownership

Atomic Energy Act 1953 (Cth)

By operation of s.35 of this Act, prescribed substances in a natural condition or in a deposit of waste material or below the surface of the ground, whether alienated or not, are the property of the Crown. This assertion of ownership is uniquely related to the Territories and undoubtedly rests constitutionally on the Territories power.

B. Exploration, Mining and Production

The Mining Ordinance 1939 (N.T.) and the Mining Ordinance 1930 (A.C.T.) are the territorial equivalents of State mining Acts. The former contains distinctive provisions relating to prescribed substances within the Atomic Energy Act 1953: uranium leases are not subject to limitation on maximum size,[8] nor are applications for them subject to postponement by a warden where alluvial may be present,[9] and forfeiture of them for breach of covenants can only occur on a recommendation from the Director of Mines and the Australian Atomic Energy Commission.[10] In the Part of the Act relating to mining on private land, the definition of "minerals" includes uranium (subject to contrary intention appearing in the Part).[11] The regulations provide that claims may be marked off for uranium and its ores and earths.[12] The Mines Regulations Ordinance 1937-78 (N.T.) is also relevant and has recently been amended to expand the power to make regulations to control waste disposal and with respect to matters of environmental protection.[13]

C. Environmental Factors

With respect to the Northern Territory, reference should be made to the Environment Protection (Alligator Rivers Region) Act 1978 (Cth), Environment Protection (Northern Territory Supreme Court) Act 1978 (Cth), National Parks and Wildlife Conservation Amendment Act 1978 (Cth) establishing the machinery for implementation of the major environmental recommendations of the Fox Report.

D. Aboriginal Land Rights

The Aboriginal Land Rights (Northern Territory) Act 1976 (Cth) followed the decision in *Milirrpum and Others* v. *Nabalco Pty Ltd*[14] and the report of the Woodward Commission on Aboriginal Land Rights. The decision was to the effect that the doctrine of communal native title did not form part of the law of any part of Australia. The Commission recommended, *inter alia*:

1. Minerals and petroleum on Aboriginal lands should remain the property of the Crown.

2. However Aborigines should have the right to prevent exploration for them on their traditional lands.
3. This Aboriginal power of veto should only be over-ridden if, in the opinion of the Government, the national interest requires it.
4. Any such decision of the Government should be subject to disallowance by either house of the Parliament.[15]

The 1976 Act sets out the circumstances in which mining interests and operations could be held or conducted with respect to "Aboriginal Land".[16] Amendments have since been made to accommodate the recommendations of the Fox Commission by the Aboriginal Land Rights (Northern Territory) Act 1978 (Cth). The end result of that Act is to vest Aboriginals, through their Land Councils, with substantial controlling powers in relation to uranium mining on Aboriginal land without vesting in them title to the uranium itself.[17]

Further amendments by the Aboriginal Land Rights (Northern Territory) Amendment Act (No. 2) 1978 assented to on 22 June, provide for mining companies on the Alligator Rivers Region to preserve their current rights of ownership and access when land becomes Aboriginal land. The Aboriginal Land Rights (Northern Territory) Amendment Act (No. 3) 1978, ensures that Aboriginal Land Rights (Northern Territory) Act will continue to apply after the Territory achieves independence.

E. Northern Territory Self-Government

Attention is drawn to the Northern Territory (Self-Government) Act 1978 (Cth) by which it is provided that "all interests of the Commonwealth in respect of minerals in the Territory (other than prescribed substances within the meaning of the Atomic Energy Act 1953 and the regulations made under that Act and in force immediately before the commencement date) are . . . vested in the Territory on that date".[18]

F. A.C.T. Shareholding Protection

Attention is also drawn to the Companies (Uranium Mining Companies) Ordinance 1970 (A.C.T.) containing provisions protective of the shareholding in Kathleen Investments (Australia) Limited and Queensland Mines Limited.

G. Government Agreement

With respect to the Ranger Uranium Project, the Commonwealth has entered into a Government Agreement and a Management Agreement with the joint venturers. That contract provides a vehicle for obtaining covenants *inter partes* directed to ensuring compliance with the foregoing legislation as well as specific requirements relating to the particular deposit.

5. STATE CONTROLS

A. Ownership

The focus in this paper to this point on Federal statutory controls should not obscure the fact that such controls are a secondary overlay on the basic legal source of controls on uranium mining in Australia. That basic source is the common law inherited by the predecessors of the present States on their foundation as colonies.[19]

The first overlap consisted of State statutory enactments. These should be read not as if rights to mine are created by them or derive from them, but to ascertain in what way they curtail or modify the landowner's common law rights as owner of all the minerals on his land not belonging to the Crown.[20] These enactments effectively reversed the common law rule that title to minerals, other than gold and silver, followed title to the land[21] and established public ownership of minerals early in Australia's history. This was achieved by a policy of reserving minerals from land grants either by statutory enactment or in the deed of grant itself so that whether minerals are publicly or privately owned depends on whether the land grant preceded the date on which such reservations commenced in each State[22] or a later date upon which a particular mineral (such as uranium) was added to the list of minerals reserved. The consequence is that it is the exception for minerals to be privately owned in the States so that ownership of State uranium resources is vested in the Crown in right of the States. As has been seen, the Atomic Energy Act 1953 (Cth) does not attempt to assert ownership of uranium in States.

One question which arises in relation to this State legislation is the legal effect of the declaration of a substance as a mineral to the intent that it is brought within the definition of minerals and so reserved. Does the reservation operate retrospectively? The probability is that it does not.[23] Consequently, it is important for a detailed examination to be made in each case, not only of the date and manner of grant of land on which uranium is located, but also the date on which uranium became a reserved mineral in the State in which the land is located. That date will be an early one in States which have had a comprehensive definition of minerals. That date will be more recent where minerals have been added progressively. Even a specific later addition may not preclude argument that prior reservation was effected within general provisions.

B. Exploration and Mining

State legislation provides a code for exploration for and mining of minerals in each State whether those minerals are located on public or private lands. No attempt will be made here to describe those State codes, which must be observed to the extent they are not inconsistent with valid Commonwealth legislation. Reference should be made, however, to special provisions in State legislation distinctively applicable to the mining of uranium.

(1) New South Wales

The Mining Act 1973 (N.S.W.) does not contain distinctive provisions with respect to uranium. It defines "minerals" to mean any substance prescribed as a mineral other than petroleum, coal or shale.[24]

Of note with respect to foreign investment is s.61 of that Act:

> In deciding whether or not to grant an exploration licence, a prospecting licence or a mining lease to a corporation, the Governor or the Minister, as the case may be, may take into account the extent, if any, to which the controlling power in the direction of the corporation's affairs is a foreign corporation (as defined in section 5(11) of the Companies Act, 1961) or an individual resident in a country outside Australia.

(2) Victoria

The Mines Act 1958 (Vic.) defines "mineral" so as to specifically include uranium and thorium and the ores and earths of those metals.[25] Discoveries of

uranium or thorium in or on any land in Victoria must be reported forthwith in writing to the Minister[26] and a notice from the Minister requiring particulars of that discovery must be complied with.[27] Possession of uranium or thorium or its use, sale or other disposition is prohibited without an authority to do so from the Minister,[28] such authority containing such terms and conditions as the Minister thinks desirable in the public interest.[29] The Minister is vested with powers to require delivery of uranium or thorium unlawfully possessed[30] and to take possession thereof and, for such purpose, to enter and remain on any land or premises.[31] Penalties are prescribed for failure to comply with these provisions.[32]

Provision is made for mineral leases on private land for uranium or thorium to be treated in the same manner as such leases for silver.[33]

There is requirement for reservation of all uranium and thorium, together with rights of access for exploration and development thereof, from all Crown grants and Crown leases from 1955.[34] All uranium and thorium on or below land in Victoria, alienated or unalienated, is deemed always to have been the property of the Crown.[35] For want of better measure, it is enacted also that minerals including uranium and thorium on land not alienated in fee simple on or before 1 March 1892 remain the property of the Crown notwithstanding alienation, lease or licence.[36] Provisions of this sort necessitate uranium developers or those advising them to check whether title to the land does or does not carry with it title to the uranium within the specific context of the particular land and the laws of the State concerned.

(3) Queensland

A broad definition of "mineral" in the Mining Act 1968 (Qld) includes substances declared by the Governor in Council to be a mineral.[37] Crown ownership of minerals is asserted by the Act.[38] There are no distinctive provisions relating to uranium.

The safety and health of workers in mines in Queensland are provided for in the Mines Regulations Act 1964-1968. This Act and the Regulations thereunder which apply to operations at Mary Kathleen Uranium Ltd., are administered by the Chief Inspector of Mines. The Company also voluntarily agreed to comply with the standards laid down by the Commonwealth Department of Health in the "Code of Practice on Radiation Protection in the Mining and Milling of Radioactive Ores, 1975".

It is proposed that, in the future, the Regulations under the Mines Regulation Act 1964-1968 will be amended to include compulsory compliance with this Code of Practice.[39]

The Queensland Department of Health exercises the functions of the "Central Health Authority" as set out in the Code of Practice, monitoring the medical reports and records of employees at Mary Kathleen. Under the Radioactive Substances Act, 1958-1970 (Qld) the Department of Health has statutory authority over the handling, storage and transport of radioactive material after it leaves the mine.

Protection of the environment is provided for in the Special Conditions which attach to each Mining Lease under the Mining Act 1968-1976 (Qld). These include provisions to ensure that radioactive material is not permitted to escape from the lease either as water-borne solutions or wind-blown dust. Regular inspection and monitoring is carried out by and under the supervision of the inspection staff of the Department of Mines to ensure compliance with the Special Conditions.

(4) South Australia

The Mining Act 1971-6 (S.A.) came into operation on 3 July 1972 and includes a wide definition of "minerals" capable of including uranium.[40] Property in all minerals is vested in the Crown "notwithstanding the provisions of any other Act or law, or of any land grant or other instrument"[41] subject to royalty rights in divested owners.[42]

By the Bill for the Mining Act Amendment Act 1978, which failed to pass into law due to certification of the wrong bill for presentation to the Governor for assent and which was repassed in the next session of Parliament,[43] special provisions were introduced for mining of radioactive minerals. These are defined to mean uranium or any other prescribed radioactive mineral.[44] No such substance is able to be mined without a mining lease upon which the Minister has endorsed an authorisation[45] although mining of other minerals is not precluded thereby provided the radioactive mineral is stockpiled or ministerial authority is given to discard it in case of low concentration.[46] Ministerial authority over the conditions of such leases and over sale and disposition of the mineral is established.[47] A class of retention leases is created[48] for use where there is a reasonable prospect the lands can be mined but the Minister considers, in relation to the mining of any mineral, that immediate mining is not justified or investigation is needed to determine the relevant terms and conditions of the lease.[49] Such leases may be granted also where authorisation is sought for mining a radioactive mineral and the Minister thinks it desirable to defer the granting of a mining lease.[50] It is the declared policy of the present South Australian Government to enforce a moratorium on mining, but not prospecting, for uranium in that State until it is satisfied that it is safe to provide uranium to a customer country,[51] and these new provisions will enable that policy to be enforced.

(5) Western Australia

The Mining Act 1904-71 (W.A.) includes all minerals other than gold and precious stones in the definition of minerals.[52] Crown ownership of gold, silver and other precious metals is asserted by s.138 of that Act, which also asserts Crown ownership of all other minerals of any land not alienated in fee simple before 1 January 1899. The position under the new Western Australian Mining Act will be explained at the Conference.

Under the Mines Regulation Act 1946-74 (W.A.), s.61(1) (va) provides for the making of regulations dealing with all matters connected with the health, safety and protection of persons engaged in the mining and processing of rock containing a radioactive substance but, at present, no such regulations have been made. Section 61(2) (b) permits regulations to be made, so as to require a matter affected by the regulations to be in accordance with a specified standard or requirement. The Commonwealth codes could be given effect to in this matter irrespective of the provisions of the Environment Protection (Nuclear Codes) Act 1978 (Cth).

Mining for uranium is also potentially controlled by the Radiation Safety Act 1975 (W.A.) but no regulations have yet been made under that Act.

The Nuclear Activities Regulation Act 1978 (W.A.) is the first state legislation to match the Environment Protection (Nuclear Codes) Act 1978 (Cth). It provides for the formulation of codes of practice by the responsible Minister with respect to nuclear activities. As with the Commonwealth, these activities are defined to include the mining (whether by underground or surface working) or recovery of any

prescribed substance or any mineral containing a prescribed substance and the construction of a mine. Regulations have not yet been made under the Act.

The size of the Yeelirrie deposit has necessitated that it form the subject of an agreement between the private developer (Western Mining Corporation Limited) and the State of Western Australia. The Agreement is scheduled to the Uranium (Yeelirrie) Agreement Act 1978 (W.A.). A perusal of the provisions of that Agreement shows the controls which may be consensually applied by that means. In addition to modifications to State law, environmental and developmental requirements are imposed. With respect to the new practice (in Australia) of applying codes attention is directed to the following clause:

> 13. (1) Notwithstanding any other provision of this Agreement, until by or under an Act of the Parliament of the State provision is made with respect to the matters contained in the codes described in this subclause the Corporation shall observe those codes and any amendments thereof or any codes substituted therefor—
>
> "Code of Practice on Radiation Protection in the Mining and Milling of Radioactive Ores, 1975" compiled by the Commonwealth Department of Health and published in 1977 by the Australian Government Publishing Service (International Standard Book Number ISBN 0-642-02994-6)
>
> "Regulations for the Safe Transport of Radioactive Materials, 1973 Revised Edition" published by the International Atomic Energy Agency, Vienna, 1973 (Publishers Code STI/PUB/323)
>
> Part 1: Code of Practice contained in pages 1 to 11 of "Management of Wastes from the Mining and Milling of Uranium and Thorium Ores" published by the International Atomic Energy Agency, Vienna 1976 (International Standard Book Number ISBN 92-0-123276-4).
>
> (2) When by or under an Act of Parliament of the State provision is made in respect of a matter contained in a code described in subclause (1) of this Clause the Corporation shall comply with that provision.

(6) Tasmania

In the Mining Act 1929 (Tas.), "mineral" is comprehensively defined to mean any metal or the ore of any metal.[53] "Atomic substance" is also a defined term and means uranium, thorium and any other substance declared by the Minister being a substance which in his opinion may be used for the production or use of atomic energy or research into matters connected with atomic energy.[54] Crown ownership of all atomic substances is effected by s.2B inserted by Act No. 17 of 1962, which also provides that no compensation is payable for divestment.

C. Milling, Treatment and Utilisation

Some of the controls existing in States at present with respect to mining would have application to subsequent stages in the nuclear fuel cycle. However, only Western Australia has moved to give a legislative framework for the application of controls to all the elements of that cycle. The Nuclear Activities Regulation Act 1978 (W.A.) defines "nuclear activities" to include the components of that cycle so that appropriate Codes of Practice may be devised by the State for those processes and associated facilities.

In addition, reference should be made at this stage as well as on extraction to public health Acts and regulations relating to radioactive substances (such as the Radioactive Substances Regulations 1959 (N.S.W.), the Radioactive Substances Act 1958 (Qld) and the Radioactive Substances Regulations 1961 (Qld), the Radioactive Substances and Irradiating Apparatus Regulations (S.A.), the Radiation Control Act

1977 (Tas.) and the Irradiating Apparatus and Radio-active Substances (Fees) Regulations 1978 (Vic.), all of which have been amended in the past year).

6. CONCLUSION

The survey of Commonwealth and State controls relating to uranium exploration and production which has been carried out in this paper, shows that such legal controls with respect to uranium can be imposed at the following points. Firstly: on licensing or on the grant of an authority to mine by the Commonwealth. Secondly: by application of a Commonwealth Code of Practice if it is applicable. Thirdly: by the Commonwealth as a condition to approval for export. Fourthly: by the Commonwealth with respect to foreign investment approval. Fifthly: by the Commonwealth or a state in a government agreement relating to the particular development. Sixthly: by the application of a state code of practice where legislation is made on that behalf. Seventhly: by the application of local government requirements to the extent they are not modified by government agreement.

The survey suggests that each of these points covenants are exacted or conditions imposed ensuring compliance with similar matters. As a consequence, there is potential for much overlap and duplication. The developer is, Gulliver-like, tied down by a number of covenants directed to the same end.

One reason for this is that legal controls over uranium in on-shore Australia are in their infancy. They are of recent origin. They are directed to the preliminary acts of mining and anticipate the later acts of production. We do not yet have the production of nuclear energy taking place in Australia. Codes of practice are just in the drafting stage. Much more jockeying over details must lie in store[55].

In the controls that have emerged to date, it is apparent that a thorough legislative base has now been laid by the Commonwealth and by the State of Western Australia. The period ahead will see how well Commonwealth/State co-operation and consultation can work to enable international, national and local controls on uranium to operate in harmony.

In the future development of these controls, it can be anticipated that attention will be directed away from issues related to government discretion and policy to legal issues among which the following will feature:

1. constitutional issues;

2. the nature of the proprietary rights involved in uranium ownership and production;

3. the point at which sale of uranium takes effect;

4. the nature and enforceability of securities held in relation to uranium mining and production;

5. the operability of the test of concurrent operation of Commonwealth and State law;

6. the liability for hazards emerging at different stages of the mining and production process.

However, the political sensitivity of uranium will probably ensure that there is a continuing high level of policy involvement associated with the legal controls on uranium.

AUSTRALIAN RESERVES OF URANIUM, (SHORT TONS) U_3O_8 SHOWING SIZE AND OWNERSHIP[a]

Deposit	*Reserves*	*Australian Companies*	*Foreign Companies*	*Net % Foreign*
NORTHERN TERRITORY				
Narbarlek	10 500	Queensland Mines	Noranda	10
Ranger	110 000	Peko, EZ, AAEC		10
Jabiluka	115 000	Pancontinental	Getty Oil	49
South Alligator	NA	United Uranium	Newmont	56
Pandanus Creek		Peko, EZ	Noranda, Utah	
Koongarra	NA		Noranda	100
STATE OF QUEENSLAND				
Mary Kathleen	6 300	Kathleen Investments, Australian Atomic Energy Commission[b]	CRA 51%	51
Anderson's Lode, Skal	4 000	Queensland Mines	Noranda	10
STATE OF WESTERN AUSTRALIA				
Yeelirrie	46 300	Western Mining	Portfolio	20
STATE OF SOUTH AUSTRALIA				
Beverley	17 500	Exoil-Transoil/ Petromin	Phelps/Dodge	50
Mt Painter	8 000	Exoil-Transoil/ Petromin	Phelps/Dodge	50
	317 600		Net FDO	23

a Adapted from McKern, *Multinational Enterprise and Natural Resources* (1976) 133 (Table 6.16).

b To take 42 per cent equity in late 1974 as underwriter via AAEC.

FOOTNOTES

1. Written on the law as at 1 March 1979
2. Agricola, *De re Metallica* (1556) translated by H.C. and L.H. Hoover (1912), 12
3. Australia, *Parliamentary Debates*, House of Representatives, 25 August 1977, 645
4. *Ibid.*
5. Conybeare, "Petroleum, Cole and Uranium: a Case Study in Production, Technology and Consumption" in Sinden (ed.)., *The Natural Resources of Australia* (1972) 156; Trelease, Bloomenthal and Geraud, *Cases and Materials on Natural Resources* (1965) 534; Australia, *First Report of the Ranger Uranium Environmental Inquiry* (1976) 20
6. Australia, *First Report of the Ranger Uranium Environmental Inquiry* (1976) 20; McKern, *Multi-national Enterprise and Natural Resources* (1976) 129
7. Butler, Raymond and Munro, *Uranium on Trial* (1977) 57
8. *Ibid.* preface
9. *Ibid.* 13, 15
10. *Ibid.* 98-90
11. Australia, *First Report of the Ranger Uranium Environmental Inquiry* (1976) 20-24
12. Butler, Raymond and Monro, *op.cit.* 39

13. *Ibid.* 42-3; Australia, *Uranium — Australia's Decision: Background Paper on What Uranium Mining means for Australia and for the World* (1977) 1. For a tabular comparison of uranium with other energy sources see McKern, *op.cit.* 128-129
14. Australia; *First Report of the Ranger Uranium Environmental Inquiry* (1976) 60 cf. McKern, *op.cit.* 129-31, Conybeare, *op.cit.* 160-1. For a definition of "reasonably assured resources" and "estimated additional resources" see Organisation for Economic Co-operation and Development: OECD Nuclear Energy Agency and the International Atomic Energy Agency, *Uranium: Resources, Production and Demand* (1975) 11
15. Commonwealth of Australia Constitution Act (1900) (U.K.), 2.9
16. *Ibid.* preamble
17. Commonwealth Constitution, s.90, 2.122
18. *Ibid.* s.51(iv), 2.51(xxxi)
19. *Ibid.* s.51
20. *Ibid.* s.109
21. *Ibid.* s.51(i)
22. *Ibid.* s.51(ii)
23. *Ibid.* s.51(iii)
24. *Ibid.* s.51(vi)
25. *Ibid.* s.51(xx)
26. *Ibid.* s.51(xxix)
27. *Ibid.* s.51(xxxv) For a discussion of the application of the defence, trade and commerce and external affairs powers to uranium see R. D. Lumb, "Uranium Mining: Legislative and Constitutional Aspects" (1979) 53 *Australian Law Journal* 84
28. Bailey, "The Constitutional and Legal Framework" in Sinden (ed.), *op.cit.* 309
29. *Ibid.* 311
30. Australia, *First Report of the Ranger Uranium Environmental Inquiry* (1976) 60
31. Bailey, *op.cit.* 326
32. Atomic Energy (Control of Materials) Act 1952 (Cth)
33. Australia, Parliamentary Debates, House of Representatives, 10 April 1978, 1293-4
34. Atomic Energy Act 1953 (Cth), s.5(1)
35. *Ibid.*
36. cf. R. D. Lump, *op.cit.*
37. Atomic Energy Act 1953 (Cth), s.38(1) (a)
38. *Ibid.* s.38(2) (a) and (b)
39. *Ibid.* s.38(2) (c)
40. *Ibid.* s.38(3)
41. *Ibid.* s.38(4)
42. *Ibid.* s.38(5)
43. *Ibid.* s.36
44. *Ibid.* s.37
45. *Ibid.* s.39
46. *Ibid.* s.40
47. *Ibid.* s.42
48. *Ibid.* s.43
49. *Ibid.* s.41(4)
50. *Ibid.* s.41A, 41B
51. *Ibid.* s.41C
52. Ranger Uranium Project, Authority under section 41, Australia Government Publishing Service, Canberra, 1979
53. *Ibid.* s.17(1) (a); (b) and (c)
54. *Ibid.* s.17(4)
55. cf. "The Enforcement Provisions of the Federal Atomic Energy Legislation" (1978) 52 *Australian Law Journal* 240
56. Commonwealth Constitution, s.109
57. Atomic Energy Act 1953 (Cth), s.55, 56
58. *Ibid.* s.48, 57
59. *Ibid.* s.60
60. Fisher, "Environmental Planning, Public Inquiries and the Law" (1978) 52 *Australian Law Journal* 13
61. *Murphyores Incorporated Pty Ltd* v. *The Commonwealth of Australia* (1976) 50 A.L.J.R. 570 (Barwick C. J. and Murphy J.)

62. *Ibid.*
63. Environment Protection (Impact of Proposals) Act 1974 (Cth), s.5(1)
64. *Ibid.* s.5(2)
65. *Ibid.* s.6, 11(1) and Administrative Procedures under the Environment Protection (Impact of Proposals) Act 1974 (Cth)
66. Environment Protection (Impact of Proposals) Act 1974 (Cth), s.8, s.11(4); Administrative Procedures, *op.cit.* s.9.1-9.5
67. Administrative Procedures, *op.cit.* s.2.2, s.3.1.2, s.4.1
68. Environment Protection (Nuclear Codes) Act 1978 (Cth), s.3
69. *Ibid.* s.4
70. *Ibid.*
71. *Ibid.* s.7
72. *Ibid.* s.8(a)
73. *Ibid.* s.9(2)
74. *Ibid.* s.9(1)
75. *Ibid.* s.10
76. *Ibid.* s.9(3)
77. *Ibid.* s.12(1)
78. *Ibid.* s.12(10)
79. *Ibid.* s.14(8)
80. Australia, *Parliamentary Debates*, House of Representatives, 10 April 1978, 1297
81. Australia, *Uranium — Australia's Decision: Background Paper on Mining, Milling — Safety* (1977) 2
82. Government policy is to encourage processing of Australian raw materials to the maximum extent possible prior to export — Australia, *Parliamentary Debates*, Senate, 4 April 1978, 803
83. Atomic Energy Act 1953 (Cth), s.38(1) (b)
84. *Ibid.* s.38(2) (b)
85. *Ibid.* s.38(4) and (5)
86. *Ibid.* s.55(1)
87. *Ibid.* s.17(4)
88. *Ibid.* s.17(1) (a)-(f). cf. *Kathleen Investments Australia Ltd.* v. *Australian Atomic Energy Commission* (1978) 52 A.L.J.R. 46
89. *Environment Protection (Nuclear Codes)* Act 1978 (Cth), s.4
90. *Atomic Energy Act* 1953 (Cth) s.38(1)(b) and (2)(b)
91. *Environment Protection (Nuclear Codes)* Act 1978 (Cth), s.4, definition of "nuclear activities".
92. Australia, *Second Report of the Ranger Uranium Environmental Inquiry* (1977) 317, 335
93. Australia, *Parliamentary Debates*, House of Representatives, 1 June 1978, 2908
94. *Ibid.* cf. Ryan, "The International Application of United States Anti-Trust Legislation", Paper to Fifth International Trade Law Seminar, Attorney-General's Department, Canberra, 25 July 1978
95. Customs (Prohibited Exports) Regulations 1958 (Cth), r.9(3)
96. Customs (Prohibited Imports) Regulations 1956 (Cth), r.4(2) and Third Schedule, Item 23
97. The *Murphyores'* Case
98. Australia, *Parliamentary Debates*, House of Representatives, 1 June 1978, 2908
99. *Ibid.* 2909

1. (1978) *Commonwealth Record* 1741
2. Australia, *Parliamentary Debates*, House of Representatives, 25 August 1977, 660
3. See Judiciary (Diplomatic Representation) Act 1977 (Cth); (1977) 51 *Australian Law Journal* 845; (1978) 52 *Australian Law Journal* 164
4. (1978) *Commonwealth Record* 896
5. *Ibid.* 1003
6. *Ibid.* 950
7. *Ibid.* 1003
8. Mining Ordinance 1939 (N.T.), s.47A
9. *Ibid.* s.68(3)
10. *Ibid.* s.87A
11. *Ibid.* s.106
12. Mining Regulations (N.T.), r.42(1)

13. *Ibid.* r.48
14. *Milirrpum and Others* v. *Nabalco Pty Ltd and The Commonwealth of Australia* (1971) 17 F.L.R. 141
15. Australia, Parliamentary Paper No. 69, *Aboriginal Land Rights Commission — Second Report* (1974) 127
16. Aboriginal Land Rights (Northern Territory) Act 1976-8 (Cth), s.3(1), s.10, s.11. cf. s.12(2).
17. See D. J. Barnett, "Aboriginal Land Rights in the Northern Territory" (1978) 1 *Australian Mining and Petroleum Law Journal* 399
18. Northern Territory (Self Government) Act 1978 (Cth), s.69(4)
19. See O'Hare, "A History of Mining Law in Australia" (1971) 45 *Australian Law Journal* 281-2; Crommelin, "Mineral Exploration in Australia and Western Canada" (1973-4) 8-9 *University of British Columbia Law Review* 38-41
20. cf. *Wade* v. *New South Wales Rutile Mining Company Pty Ltd* (1970) 121 C.L.R. 177, 185
21. O'Hare, "A History of Mining Law in Australia" (1971) 45 *Australian Law Journal* 281, 282
22. *Ibid.* 284-286
23. cf. *Wade*'s Case
24. Mining Act 1973-6 (N.S.W.), s.6(1)
25. Mines Act 1958 (Vic.), s.3(1)
26. *Ibid.* s.511(1)(a)
27. *Ibid.* s.511(1)(b)
28. *Ibid.* s.511(2)(a)
29. *Ibid.* s.511(2)(b)
30. *Ibid.* s.511(3)(a)
31. *Ibid.* s.511(3)(b)
32. *Ibid.* s.511(4)
33. *Ibid.* s.300, s.357. cf. s.291(2)
34. *Ibid.* s.508(3)
35. *Ibid.* s.508(1)
36. *Ibid.* s.291(2)
37. Mining Act 1968-76 (Qld), s.7(1)
38. *Ibid.* s.110
39. Advice from Under Secretary, Department of Mines (Qld), 13.7.78
40. Mining Act 1971-6 (S.A.), s.6
41. *Ibid.* s.16(1)
42. *Ibid.* s.19. See *Emerald Quarry Industries Pty Ltd* v. *Commissioner of Highways* (1976) 14 S.A.S.R. 486
43. South Australia, *Government Gazette*, June 1, 1978, 1879
44. Mining Act 1971 (S.A.)
45. *Ibid.* s.10a(1)
46. *Ibid.* s.10a(3)
47. *Ibid.* s.10a(2) and (4)
48. *Ibid.* s.41a(1)
49. *Ibid.* s.41a(2)(a) and (b)
50. *Ibid.* s.41a(2)(c)
51. South Australia, *Parliamentary Debates*, Legislative Assembly, 14 February 1978, 1500
52. Mining Act 1904 (W.A.), s.3
53. Mining Act 1929 (Tas.), s.2(1)
54. *Ibid.*
55. See Graham, "Federal-State Relations in the Control of Radiation Hazards" (1960) 2(3) *Atomic Energy Law Journal* 225; Upton and Ehren Jr, "Federal and State Regulation of Transportation of Atomic Materials" (1961) 3(2) *Atomic Energy Journal* 123