

# Review of regulatory efficiency in uranium mining

Final Report: December 2008



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# Statement of responsibility

This report was commissioned by the Department of Resources, Energy & Tourism (RET) in conjunction with the Department of Primary Industries and Resources South Australia (PIRSA) and the Northern Territory Department of Regional Development, Primary Industries, Fisheries and Resources (DRDPIFR) on behalf of the Uranium Industry Framework (UIF) solely for the purpose of providing a review of regulatory efficiency in uranium mining in Australia.

In preparing this report we have relied on the accuracy and completeness of information provided to us by the UIF, other relevant stakeholders (Appendix A) and from publicly available sources. We have not audited or otherwise verified the accuracy or completeness of the information. However the content of the report, including any opinions, assessments and conclusions, is solely the work of Deloitte Economics. We have not contemplated the requirements or circumstances of anyone other than the UIF.

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## Acronyms

|         |  |
|---------|--|
| ALP     | Australian Labor Party   |
| ANSTO   | Australian Nuclear Science and Technology Organisation                               |
| ARMA    | Australian Radiation Management Authority  |
| ARPANSA | Australian Radiation Protection and Nuclear Safety Agency                            |
| ARR     | Alligator Rivers Region  |
| ARRAC   | Alligator Rivers Region Advisory Committee   |
| ARRTC   | Alligator Rivers Region Technical Committee  |
| ASNO    | Australian Safeguards and Non–Proliferation Office                                   |
| BHPB    | BHP Billiton   |
| COAG    | Council of Australian Governments  |
| CPPNM   | Convention on the Physical Protection of Nuclear Material                            |
| DBIRD   | Department of Business, Industry and Resource Development (NT) (Now DRDPIFR)         |
| DEH     | Department of Environment and Heritage (SA)  |
| DEWHA   | Department of Environment, Water, Heritage and the Arts (CW)                         |
| DFAT    | Department of Foreign Affairs and Trade (CW)   |
| DOJ     | Department of Justice (incorporating NT WorkSafe) (NT)                               |
| DPC     | Department of Premier & Cabinet (SA)   |
| DRDPIFR | Department of Regional Development, Primary Industries, Fisheries and Resources (NT) |
| DWLBC   | Department of Water, Land, Biodiversity and Conservation (SA)                        |
| ECC     | Environment Consultative Committees  |
| EIS     | Environmental Impact Statement   |
| EMMP    | Environmental Management and Monitoring Plan   |
| EPBC    | <i>Environment Protection and Biodiversity Conservation Act 1999</i>                 |
| EPIP    | <i>Environment Protection (Impact of Proposals) Act 1974</i>                         |
| ERA     | Energy Resources of Australia  |
| FaHCSIA | Department of Families, Housing, Community Services and Indigenous Affairs (CW)      |
| IAEA    | International Atomic Energy Agency   |
| IGAE    | Intergovernmental Agreement on the Environment                                       |
| INES    | International Nuclear Event Scale  |

|         |   |
|---------|---|
| ISL     | <i>In Situ</i> Leach  |
| MARP    | Mining and Rehabilitation Plan                                      |
| MMP     | Mining Management Plan  |
| MOU     | Memorandum of Understanding   |
| MTC     | Minesite Technical Committee  |
| MW      | Megawatt  |
| NCP     | National Competition Policy   |
| NEMMCO  | National Electricity Market Management Company                      |
| NEWS    | Nuclear Events Web Based System                                     |
| NPT     | Nuclear Non-Proliferation Treaty                                    |
| NRETAS  | Department of Natural Resources, the Arts and Sport (NT)            |
| OD      | Olympic Dam   |
| OIPC    | Office of Indigenous Policy Coordination                            |
| OSS     | Office of the Supervising Scientist                                 |
| PER     | Public Environment Report   |
| PIRSA   | Primary Industries and Resources South Australia                    |
| RET     | Department of Resources, Energy and Tourism (CW)                    |
| RMP     | Radiation Management Plan   |
| RPD EPA | Radiation Protection Division Environment Protection Authority (SA) |
| RWMP    | Radiation Waste Management Plan                                     |
| SSD     | Supervising Scientist Division                                      |
| TRS     | Tailings Retention System   |
| TWh     | Terawatt Hour   |
| UIF     | Uranium Industry Framework  |
| UMPNER  | Uranium Mining, Processing and Nuclear Energy Review                |
| WMC     | Western Mining Corporation  |

# Summary, conclusions and recommendations

## Summary and conclusions

### Background to the review

The Department of Resources, Energy and Tourism (RET)<sup>1</sup>, the Department of Primary Industries and Resources South Australia (PIRSA) and the Northern Territory Department of Regional Development, Primary Industries, Fisheries and Resources (DRDPIFR) on behalf of the Uranium Industry Framework (UIF)<sup>2</sup>, commissioned Deloitte to undertake a review of the uranium industry regulatory system. The purpose of the report is to identify specific, implementable actions that will progress the recommendations focussed on streamlining regulation from the UIF. This project is jointly funded by the Commonwealth, South Australia and Northern Territory Governments.

The review takes place against a background of a high rate of potential industry expansion. Over the past two decades, the uranium mining industry in Australia has shown little growth. This has been in large part due to the low world uranium prices following large quantities of secondary supplies in the market, particularly from the down-blending of highly enriched uranium from weapons in the former Soviet Union. It also reflects problems faced by the nuclear power industry globally as a result of increased costs and concerns about safety following the accident at Chernobyl. In Australia, industry development has also been restricted since 1984 by the ALP's 'Three Mines' and subsequently 'No New Mines' policies. While the ALP federally voted to end restrictions on the number of mines in 2007, three of Australia's six State governments continue to ban uranium mining.

Nevertheless, the industry is now gearing up for growth. On the supply side, Australia has greater known reserves of economically recoverable uranium than any other country, with a larger share of the world's uranium reserves than Saudi Arabia's share of global oil reserves. On the demand side, the world is turning to nuclear power in response to concerns about energy security and climate change. In mid-2008 there were 33 new reactors under construction, a further 94 on order or planned and another 222 proposed in various countries around the world.

While the prospects for growth in the world's demand for uranium are now very bright, business in particular is concerned that overlapping and sometimes contradictory regulation could inhibit the development of Australia's uranium industry. The UIF has identified the approach to uranium regulation in Australia as an impediment to the development of the industry. Other studies — most notably the UMPNER and 'Prosser' reports — also

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<sup>1</sup> Formerly part of the Department of Industry, Tourism and Resources.

<sup>2</sup> The members of the UIF implementation group comprise Uranium Equities Ltd; Northern Land Council; Energy Resources of Australia Ltd; Heathgate Resources; BHP Billiton; Paladin Resources; Cameco Australia; Australian Uranium Association; Minerals Council of Australia; Association of Mining and Exploration Companies; Queensland Resources Council; Northern Territory Minerals Council; Department of Resources, Energy and Tourism; Geoscience Australia; Department of Environment, Water, Heritage and the Arts; Department of Primary Industries and Resources (South Australia); Department of Primary Industry, Fisheries and Mines (Northern Territory).

identified a number of issues around the regulation of uranium mining, including the complexity of the current system and the extent of overlap and duplication it entails. The findings of these three major reports in relation to the regulatory framework for uranium mining provide the key context against which this current review has been undertaken.

A significant component of this review was a major round of consultations with key industry, government and community stakeholders at Commonwealth and State/Territory level (a full list of those consulted is provided at Appendix A). The analysis and recommendations contained in this report draw on these discussions.

## Industry regulation

Governments have a legitimate role in regulating the activities of business where those activities give rise to concerns about the wellbeing of either participants in the industry, or of the community more broadly. Governments must also comply with their international treaty obligations. In relation to mining, the government also has a significant public interest role in managing access to limited and valuable publicly-owned resources.

In every respect except one, the regulatory regime for the uranium industry should be no different from any other mining industry. The exception is that uranium is a radioactive substance. Therefore, even if the actual risks involved in uranium mining are generally no greater than those associated with other mining activities — particularly in Australia, where the grades of uranium mined are relatively low — the public perception is that the industry is more risky. A key objective of regulation must be to provide a level of comfort to the community as well as to manage the genuine risks. This suggests that, as in other federations, the national government is likely to be involved. This is inevitable anyway as a consequence of some of Australia's treaty obligations.

While government regulation of industries, including uranium, is clearly justified, poorly designed regulation can have a significant negative impact on business productivity and economic performance. The Council of Australian Governments (CoAG) has established a number of criteria for regulation to ensure, as far as possible, that it is efficient and effective in meeting its objectives. In this report, the current regulatory regime for uranium mining in Australia is evaluated against these criteria.

## Need for reform

The regulation of uranium mining in Australia has developed over time into a complex system involving numerous parties. Regulation in the Northern Territory is characterised by a very hands-on approach, but this is largely because the only currently operating mine in that jurisdiction (Ranger) is located in a very sensitive region — in terms of both ecological and Indigenous issues — and adjacent to a World Heritage area. The three other mines are located in a single State, South Australia, where there is some overlap and duplication as a result of both State and Commonwealth involvement in regulating those three mines. While the recent election of a new government in Western Australia has resulted in the removal of the bans on uranium mining in that State, uranium mining is still not permitted in Queensland, New South Wales and Victoria, with the latter two States maintaining legislative bans on both uranium exploration and mining. These bans in themselves constitute a clear impediment to the further development of the uranium industry.

In assessing options for regulatory reform, the consultants spent a considerable time evaluating comprehensive options under which there would be only one Australian regulatory authority for the environmental aspects of uranium mining. In practice, this would



involve a choice between either Commonwealth Government regulation or a national regime administered under CoAG.

Other developed countries with uranium resources and a federal system of government like Australia's exhibit a strong level of federal government control. The US and Canada provide examples of this. But in one critical respect both these countries are different from Australia: they both have significant nuclear power industries. There is a much stronger argument for central government regulation of nuclear power than uranium mining, particularly where uranium grades are relatively low as in Australia.

We have concluded, therefore, that establishing a single Commonwealth or national regulatory framework would be appropriate if Australia were considering nuclear power as part of its energy portfolio in response to climate change. This would also be appropriate if the government felt it prudent to establish a regulatory framework now in order to allow the nuclear option to be open in the future. As long as nuclear energy is not on any government's agenda in Australia, however, the possible benefits of this approach would not justify the costs.

We have therefore focussed more on an approach based on identifying the main regulatory factors inhibiting the industry's development and recommending an approach that addresses each of these within the current architecture. The top ten areas for reform have been identified as follows:

1. Access to land — the continuing bans on uranium mining in Queensland, and bans on exploration for uranium and mining in New South Wales and Victoria.
2. Duplication and overlaps in environmental regulation between the Commonwealth and the States.
3. Involvement of RET in assigning environmental conditions to export permits.
4. Incident reporting.
5. Monitoring, reporting and stakeholder consultations.
6. Transport regulations, including access to ports.
7. Access to Aboriginal land in the NT.
8. Territory and Commonwealth legislative framework in the Northern Territory.
9. The ongoing process of alignment between the broad outcomes-based approach of the MARP and radiation specific nationally agreed process of RMP/RWMP in South Australia.
10. Issues relating to safeguards.

These are considered below.

## Access to land for uranium exploration and mining

Two significant current characteristics of the global energy market are increasing demand for lower emissions fuels (such as uranium and natural gas) in response to climate change and a significant concern about energy security. Both of these are relevant to the situation in which three Australian States continue to ban the mining of uranium.

First, the majority of developed economies are either building, planning or examining the feasibility of new nuclear power stations as a key response to climate change. Currently, while other technologies show promise, only nuclear energy and geothermal provide

relatively commercial, near-zero emissions solutions for base load power generation. The global demand for uranium is projected to increase very significantly over the next few years and Australia is very well placed to meet that demand.

Secondly, Australian bans on uranium mining may not have attracted international attention in an energy-rich world in a context where the nuclear power industry was in decline. But that situation has changed. The problems in the Middle East together with concerns about the reliability of gas supplies from Russia have highlighted the issue of energy security for many countries. In this context, a nation that refuses to develop and supply energy resources in response to market forces, particularly a fuel that is regarded in almost every country as a prime means of responding to climate change, is likely to find itself in a challenging position in international forums. This may have a particular significance for a country that is positioning itself as a stable and reliable supplier of energy to the world.

The Commonwealth Government supports uranium exports. It should open negotiations with those State governments still maintaining bans in order to phase them out as soon as possible.

There are also some issues involving access to defence land in areas where exploration for uranium is considered to be prospective or for the purpose of establishing infrastructure corridors to service mining and exploration operations. Access to defence land should be reviewed by the Commonwealth to ensure that the most appropriate arrangements are in place to accommodate the needs of both the Australian Defence Department and the resources sector.

## Streamlining mining approvals

While mining approvals generally come under the jurisdiction of the States, the introduction of the *Environment Protection and Biodiversity Conservation (EPBC) Act* in 1999, with its nuclear actions clause that includes uranium mining, has brought another jurisdiction, the Commonwealth, into the uranium mining approvals process. This potentially introduces a dual assessment process, with sign-off required by both a State and a Commonwealth Minister. Some business stakeholders have suggested that this dual process leads to delays and additional compliance costs for the industry.

We have examined a number of approaches to this issue, including:

- comprehensive solutions to produce a single regulator, as discussed above
- a negotiated approach whereby the Commonwealth's Supervising Scientist would, subject to agreement by relevant States and Territories, assume responsibility for the environmental regulation of uranium mines
- the removal of uranium mining as a classified nuclear action under the EPBC Act.

All of these have their attractions. The difficulties with a comprehensive solution have already been discussed. The expansion of the SSD's operations on a negotiated basis would still leave a situation where determinations would be required by two Ministers from different jurisdictions (although it would be sensible for the Commonwealth to offer the SSD to States and Territories as a regulator if they would like to draw on its services).

Removal from the EPBC Act of uranium mining as a nuclear action is attractive but should only occur following an authoritative scientific study which clearly demonstrated that the actual risks involved in uranium mining are no greater than for other mines such as copper, gold or iron ore.

In this context, it also should be noted that a dual approvals process exists for most major resource projects which trigger intervention under the EPBC Act under its general 'environmental significance' provisions. The process for these projects has been rationalised by the development of protocols between the Commonwealth and State/Territory governments to accredit a single assessment process. In cases where the EPBC Act is triggered, this approach seems to be the most promising way forward for the uranium mining sector, as demonstrated by the current experience with the management of Australian and South Australian government approvals for the proposed expansion of the Olympic Dam mine.

### Environmental conditions on export permits

Uranium mines which were approved under the *Environment Protection (Impact of Proposals) Act 1974* (EPIP Act) are required to satisfy Commonwealth Government environmental criteria as an ongoing condition of the granting of export permits for uranium. If these mines are expanded and are then required to be reassessed under the EPBC Act, this requirement is no longer relevant. This is because the EPBC Act has its own enforcement and penalty provisions making the addition of environmental conditions to uranium export permits a duplication of regulatory oversight in respect to environmental issues. Once projects are approved under the EPBC Act, there should be no need to regulate environmental issues through export control mechanisms. On this basis, it seems possible that only Honeymoon (not yet in operation) will ultimately be affected in this way and opportunities for streamlining exist.

Under the current arrangements, the Minister for Resources is responsible for issuing export permits (at present these are mainly concerned with environmental and safeguards conditions) and so his department is responsible for these assessments. This responsibility is acquitted on the basis of expert advice from the Department of Environment, Water, Heritage and the Art (DEWHA), ASNO, state regulators and other sources. If environmental matters are delegated to DEWHA, there is a case for transferring this responsibility to another Minister, such as the Minister for Foreign Affairs or the Minister for Trade..

On the other hand, until all environmental conditions are removed from export permissions (as projects are assessed under EPBC Act), there is also an argument for retaining the status quo. In the meantime, RET could establish an MOU with DEWHA to manage environmental conditions attached to export permits on its behalf.

### Incident reporting

Unlike current best practice in Canada and the US, incident reporting in Australia is not based on the actual risks involved. There are also different codes of practice in the NT and South Australia. As the uranium mining industry develops, there is a strong case for developing a national Code of Practice for incident reporting based on a similar approach to the Canadian model. Special arrangements would continue to apply to mines in the Alligator Rivers Region.

### Stakeholder engagement, monitoring and reporting

It would be appropriate for a national approach to be developed towards monitoring environmental compliance and stakeholder engagement. There is a case for a review of the existing stakeholder engagement arrangements by government (Commonwealth, State and Territory) in order to identify opportunities to consolidate this engagement. In addition, a

national Code of Conduct relating to the frequency of stakeholder meetings should be developed. The Code of Conduct should establish minimum standards, with individual mine operators retaining the discretion to tailor their own stakeholder engagement processes to the needs or expectations of the stakeholders concerned. It should also recommend a monitoring approach based on regulatory audits, with a major audit carried out every three years.

## Transport

The issues here are the number of responsible authorities for the transport of radioactive materials in Australia and access to transport infrastructure.

All States and Territories should adopt into their relevant legislation the ARPANSA Code of Practice for the Safe Transport of Radioactive Material (2008 edition). Secondly, where a project proponent requires access to particular transport infrastructure to export uranium, the Commonwealth Government should negotiate with the relevant State/ Territory government to ensure there are no unnecessary restrictions in place.

## Access to Aboriginal land

With the upsurge in exploration for uranium, there has been a significant increase in negotiations between leaseholders and Indigenous groups over access to land in the Northern Territory.

The time limits for Land Councils to respond to applications have been extended, and there have been changes to the way Land Councils are resourced based on workload. However, it appears delays are still occurring due to issues such as inadequate resourcing of Land Councils, a skills shortage within the Land Councils to meet the demand of project proponents and some project proponents being inexperienced at negotiating with Traditional Owners.

Project proponents should ensure they are thoroughly prepared for negotiations with Traditional Owners and are in a position to respond to all issues raised in discussions. It is understood that the Australian Uranium Association appreciates this issue and has prepared an information pack that businesses can draw on when undertaking these negotiations. It is also important that Land Councils continue to work with industry to better inform them on the most effective ways of communicating with Traditional Owners.

## Northern Territory legislative issues

The prime objective of the *Atomic Energy Act 1953 (Commonwealth)* is fundamentally obsolete. On this basis the Act should be repealed. This could be accompanied by the vesting of the ownership of uranium resources through the Crown in the Northern Territory Government rather than the Commonwealth. Commonwealth ownership of these assets reflects the strategic mindset of the early years of the Cold War and differentiating uranium from other resources in terms of ownership is no longer justified.

Repealing the *Atomic Energy Act* would allow the regulatory framework for the Ranger mine to be normalised under Northern Territory mining legislation. The Alligator Rivers legislation would still apply. The current Ranger Agreement is characterised by an overly hands-on approach that does not reflect contemporary regulatory best practice. A new agreement should be negotiated between the Commonwealth, the NT Government and the operator of the Ranger mine, Traditional Owners and other relevant stakeholders.

## South Australian process issues

There have been some differences in view between South Australian Government agencies regarding the inter-relationship of radiation plans which apply to the mining of radioactive ores and the Mining and Rehabilitation Plan (MARP) which applies to all mining projects.

On the basis that significant progress has been made since this study was commissioned, we do not see this as a first order issue and consider that negotiations between agencies to resolve the differences should continue.

## Safeguards

Some industry representatives believe that proliferation constitutes the greatest potential threat to the future growth of Australia's uranium industry.

While there are no issues in regard to ASNO's role within Australia, there is a case for appointing an Ambassador for Nuclear Non-Proliferation. This could also harmonise well with the Australian Prime Minister's recent initiative for the International Commission for Nuclear Non-Proliferation and Disarmament.

## Recommendations

### Recommendation 1

That the Commonwealth undertake negotiations with State governments directed towards the repeal of any legislation and elimination of any regulations and policies that prevent exploration for and mining of uranium.

### Recommendation 2

The Commonwealth review access to defence land to secure a better accommodation between Defence Department and resource sector needs.

### Recommendation 3

Subject to the provision of clear evidence that the actual risks involved in uranium mining are no greater than for other mines such as copper, gold or iron ore, the EPBC Act should be amended to remove the uranium mining and milling element of the nuclear trigger.

### Recommendation 4

Consolidate all Commonwealth environmental responsibilities in relation to uranium mining, (including the obligations under the EPIP Act, EPBC Act, Atomic Energy Act, and Alligator Rivers legislation) under the Minister for the Environment.

### Recommendation 5

That the Commonwealth continue to develop protocols and working arrangements with relevant States and Territories so that a single assessment process for proposed new or expanded uranium mines is undertaken where the EPBC Act is triggered. These protocols

should include factors such as clear time limits for the assessment process and the final determination.

### Recommendation 6

That once administrative responsibilities for uranium mining are consolidated under the Environment Minister (Recommendation 4 above), all environmental requirements on uranium export permits be removed for those uranium mines approved under the EPBC Act.

### Recommendation 7

That the Ministerial responsibility for issuing export permits for uranium be reviewed with the objective of streamlining and consolidating stakeholder interaction with regulators.

### Recommendation 8

That a national Code of Practice for incident reporting, which is derived from world best practice and based on actual risks, be developed by ARPANSA.

### Recommendation 9

That the Commonwealth and relevant State and Territory governments, in partnership with industry, develop principles and guidelines for stakeholder engagement in the ongoing monitoring of uranium mines. This would include reviewing the frequency of meetings, what information should be provided and examining measures to consolidate and streamline stakeholder engagement.

### Recommendation 10

That a single body be created with the responsibility for issuing permits for the transport of uranium, with protocols to be developed with State and Territory authorities under the auspices of the National Transport Council.

### Recommendation 11

That all States and Territories uniformly adopt the ARPANSA Code of Practice for the *Safe Transport of Radioactive Material* (2008 edition) into their relevant legislation governing the transport of radioactive materials, including uranium.

### Recommendation 12

That the Commonwealth work through the CoAG process to ensure that uranium exporters have reasonable access to transport infrastructure (port facilities, rail and road) as they require, based on their commercial judgements.

### Recommendation 13

That governments establish a process with Land Councils and project proponents to address the core issues that are limiting access to ALRA land.

### Recommendation 14

That consideration should be given to amending existing legislation so that ownership of uranium in the Northern Territory is vested in the Crown through the Northern Territory Government.

### Recommendation 15

Subject to the views of stakeholders, the Ranger uranium mine should be normalised under NT mining legislation.

### Recommendation 16

That South Australian Government agencies continue to further progress the alignment of the environmental regulatory approach associated with the RWMP and MARP processes.

### Recommendation 17

That the Commonwealth create the new position of Australian Ambassador for Nuclear Non-Proliferation.

# 1 Introduction and background

*This chapter provides background to the report and sets out the project's terms of reference and methodology. We also look briefly at the current state of uranium mining in Australia and the prospects for future growth.*

## 1.1 Project brief

The Uranium Industry Framework (UIF) was developed during 2005–06 with the primary objective of identifying opportunities for, and impediments to, the future development of the Australian uranium industry.<sup>3</sup> The UIF Steering Group was made up of senior representatives of the uranium industry; the Commonwealth, South Australian and Northern Territory governments; and the Northern Land Council. The UIF made a range of recommendations to develop and enhance Australia's uranium industry, including a number in relation to the regulation of the sector. In accordance with these recommendations, the Department of Resources, Energy and Tourism (formerly the Department of Industry, Tourism and Resources), with joint funding from the Commonwealth, South Australian and Northern Territory governments, on behalf of the UIF, has commissioned Deloitte to review the efficiency of regulation of the uranium mining industry in Australia. The review is required to deliver the following outcomes:

- analysis of the current status of the uranium mining regulatory sector through
  - consultation with key stakeholders of the industry, including relevant Indigenous organisations, conservation councils and representative environmental and consumer interest groups, as agreed with RET
  - reporting stakeholders' 'top 10' industry regulatory impediments list
  - a map of the current regulatory framework
- identification and quantification of
  - cross-jurisdictional issues impacting on regulatory arrangements, including inefficiencies, ineffectiveness and duplication of regulations
  - any lack of transparency in the regulatory system
  - any unnecessary costs imposed on government and/or industry as a result of the existing regulations
  - an ideal model for the regulation of the uranium mining industry in Australia
- recommendations of a new regulatory model

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<sup>3</sup> Commonwealth of Australia 2006, Report of the Uranium Industry Framework Steering Committee, available at [www.ret.gov.au/uif](http://www.ret.gov.au/uif)



- recommendations — in line with (CoAG) regulatory principles and National Competition Policy (NCP) guidelines — for specific actions which could be taken by governments and industry that will make a measurable improvement in these areas and that will address the recommendations of the UIF Steering Group report that relate to regulation (recommendations 9, 10 and 11)
- recommendations for change – streamline incident reporting
- including identifying resource requirements under the new model
- a map of the proposed leading practice model.

The three relevant recommendations from the UIF report are provided in Box 1.1 below.

**Box 1.1**

UIF RECOMMENDATIONS IN RELATION TO REGULATION

**Recommendation 9**

The Commonwealth Government and State and Territory governments will work cooperatively to ensure that, where possible, environmental and other regulatory arrangements across jurisdictions are harmonised. All levels of government, in consultation with the uranium industry and other stakeholders, should also apply guiding principles for the regulation of the uranium industry which:

- provide a coherent and consistent policy framework reflecting the respective policy objectives, roles and responsibilities of the Commonwealth Government and the State and Territory governments in relation to the regulation of the uranium industry;
- are high level and strategic and include agreed objectives and outcomes that can be reported on at the State, Territory and national levels; and
- are supported by appropriate arrangements between the Commonwealth Government and relevant State and Territory governments.

**Recommendation 10**

The Commonwealth Government, in consultation with relevant State and Territory governments, should consider the most appropriate, effective and efficient arrangements required to discharge its regulatory responsibilities in relation to environmental requirements attached to Commonwealth Government approvals of new uranium mines (and expansions of existing mines) in all jurisdictions under the Environment Protection and Biodiversity Conservation Act 1999.

**Recommendation 11**

The Commonwealth Government, relevant State and Territory governments and the uranium industry work cooperatively to ensure that regulatory arrangements and industry performance are consistent with world's leading practice by:

- maintaining effective and efficient coordination between relevant regulatory agencies to provide, where possible, a single administrative point of contact for industry ('one stop shop')
- ensuring that community and other stakeholder engagement processes are consistent with MCMPR principles and include all relevant stakeholder interests
- ensuring that industry reporting requirements are effective and efficient and, where possible, appropriately streamlined.

Source: Commonwealth of Australia 2006, *Report of the UIF Steering Committee*.

## 1.2 Project background

The report of the UIF Steering Group is one of a number of reports into Australia's uranium industry in recent years. Other reports — most notably the UMPNER and 'Prosser' reports — also identified a number of issues around the regulation of uranium mining. The findings of these three major reports in relation to the regulatory framework for uranium mining provide the key context against which this current review has been undertaken. The relevant findings of each report are discussed briefly in turn below.

### UIF Steering Group

The UIF Steering Group identified the lack of a consistent approach to uranium regulation in Australia as a significant impediment to the development of the industry. Underlying the three key recommendations outlined in Box 1.1 above, the report notes the need for a harmonisation of national regulatory arrangements to result in a regulatory framework for uranium in Australia, which is:

- *consistent* — where possible and appropriate, regulatory requirements imposed by government at all levels should be consistent to avoid duplication of effort, redundancies and inefficiencies
- *risk based* — regulatory requirements should be commensurate with the actual level of risk (being a function of the magnitude of impact on human health and the environment of the event, and the probability of the event occurring) involved with the material and/or process
- *outcome based* — regulatory requirements should be outcome based, allowing operators to determine the most efficient and effective means of achieving or exceeding compliance (the principle of 'best practicable technology'). There may be instances, however, where the regulatory outcome requires a specific action, and this should be prescribed
- *achieving low sovereign risk* — Australia is recognised globally as a safe, reliable and environmentally responsible supplier of uranium, with a world-class and evolving regulatory regime. It is important that Australia maintains this high standard to continue to attract foreign investment into the industry, support sustainable development and open additional market opportunities
- *consistent with world's leading practice* — regulation should be consistent with world's leading practice standards and, where practicable, should take account of the high level of industry performance in complying with and, in many cases, exceeding regulatory requirements. While the industry will continue to be subject to rigorous regulation due to its nature and the level of public interest, it is important that regulatory arrangements continue to be commensurate with the actual level of risk and that they are effective and efficient, and reflect world's leading practice
- *transparent* — while regulatory arrangements should be effective in controlling identified risks, there is also a need to ensure that regulation is seen to be effective by the broader community. Reporting arrangements should be relevant and informative. Community consultative arrangements should be effective and contribute to mutual trust and information exchange between relevant stakeholders. Communication should aim to ensure that all stakeholders are aware of the actual level of risks and the effectiveness of the controls applied to address the risks.

## UMPNER

In June 2006, a Prime Minister’s Taskforce was commissioned to review uranium mining, processing and nuclear energy in Australia — the UMPNER review. The UMPNER report found significant overlap in various regulations relevant to the uranium industry, including around uranium mining.<sup>4</sup> Specifically, the report concluded that:

Extensive and at times duplicative regulatory requirements apply to uranium mining. Adding to this complexity, across the states and territories the regulatory responsibility for health and safety, and environmental standards, is housed in different agencies, and in some cases across agencies. There are significant advantages in rationalising and harmonising regulatory regimes for uranium mining across jurisdictions.

Australian Government 2006, *Uranium Mining, Processing and Nuclear Energy: Opportunities for Australia?* Report to the Prime Minister by the Uranium Mining, Processing and Nuclear Energy Review Taskforce, December 2006. p. 125.

Options for reform in the UMPNER report included a single national regulatory authority for mine safety, as well as extending this to environmental assessment and approvals processes for uranium mining. The report also flagged the possibility of improving regulatory efficiency by separating the regulatory function from other functions in agencies such as ASNO.

## House of Representatives (“Prosser”) report

In March 2005, the House of Representatives Standing Committee on Industry and Resources was directed to inquire into, and report on, the development of the non-fossil fuel energy industry in Australia, commencing with a case study into the strategic importance of Australia’s uranium resources. The recommendations from the resultant 2006 report covered the entire uranium mining supply chain, safety issues for nuclear fuel, global non-proliferation, industry impacts for Aboriginal communities, economic barriers and impediments to industry growth, and recommendations on value-adding for direct and indirect services in relation to the uranium sector.<sup>5</sup>

In relation to regulation, essentially the report concluded that while industry is generally supportive of State and Territory governments regulating uranium mining, and is confident that the current regulatory regime is sufficiently stringent, there is some concern with some of the complexity involved and perceived reporting regulations that exceed those of other minerals industries. In particular, the report recommended that the regulatory regime in the NT should be reviewed with a view to consolidation and simplification (see Chapters 2 and 3 for mapping of current NT system and issues with the current system).

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<sup>4</sup> Australian Government 2006, *Uranium Mining, Processing and Nuclear Energy: Opportunities for Australia?*, Report to the Prime Minister by the Uranium Mining, Processing and Nuclear Energy Review Taskforce, December 2006.

<sup>5</sup> The Parliament of the Commonwealth of Australia 2006, *Australia’s uranium — Greenhouse friendly fuel for an energy hungry world: A case study into the strategic importance of Australia’s uranium resources* for the Inquiry into developing Australia’s non-fossil fuel energy industry, House of Representatives Standing Committee on Industry and Resources, November.

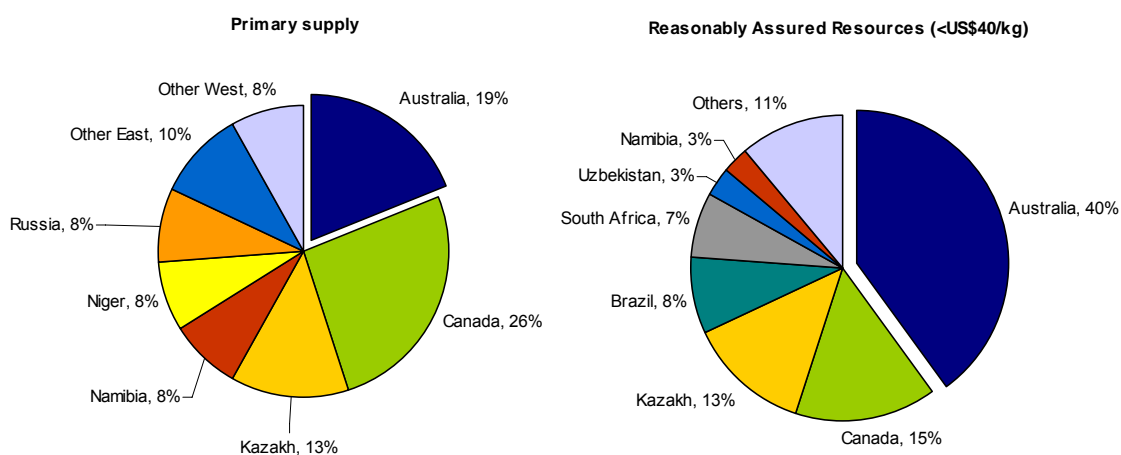
## 1.3 The Australian uranium industry<sup>6</sup>

### Australia's uranium reserves

At a price of <US\$40/kg, Australia has the world's largest share of reasonably assured uranium resources with 40 per cent, well ahead of Canada's 15 per cent and Kazakhstan's 13 per cent (Figure 1.1). To put this in context, Australia has a greater share of the world's uranium reserves than Saudi Arabia's share of global oil reserves.<sup>7</sup>

While Australia has the largest economic reserves of uranium, however, we are only the second largest producer and command less than 20 per cent of the global market. This opens up opportunities for expansion in the Australian uranium mining sector.

**Figure 1.1**  
URANIUM RESERVES AND SUPPLY (2007)



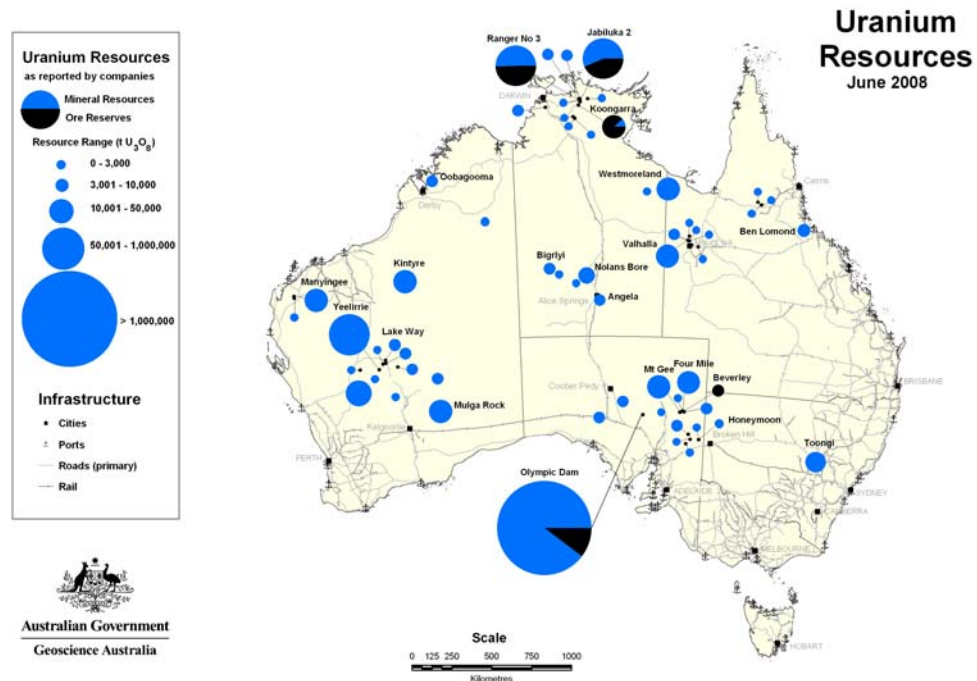
Source: Nuclear Energy Agency, 2008, *Uranium 2007: Resources, Production and Demand*, A Joint Report by the OECD Nuclear Energy Agency and the International Atomic Energy Agency, 2008.

More than three quarters of Australia's known and inferred reserves are found in South Australia, and more specifically, in the Olympic Dam deposit (Figure 1.2). Other significant resources have also been found in the Northern Territory, including in particular the Ranger deposit in the Alligator Rivers Region. Some substantial reserves have also been identified in Queensland and Western Australia; however, as uranium mining was until very recently banned in Western Australia and remains banned in Queensland, exploration has been limited. The recent increases in the uranium price have, however, led to more exploration in these States.

<sup>6</sup> This section draws on work undertaken for the Australian Uranium Association by Deloitte in 2008.

<sup>7</sup> Figures from 2007 Red Book IAEA/ NEA (as at 1 January 2007). Saudi Arabia's share of proven reserves was estimated to be 22 per cent in 2006. Organisation of the Petroleum Exporting Countries, 2006, *Annual Statistical Bulletin: 2006*, Organisation of the Petroleum Exporting Countries, Vienna.

**Figure 1.2**  
AUSTRALIA'S URANIUM RESOURCES



Source: Geoscience Australia, 2008

## Current mines

Australia currently has three operating uranium mines in the Northern Territory and South Australia. The three operating mines are:

- Ranger** — The Ranger mine is owned by Energy Resources of Australia Ltd (ERA), a majority owned subsidiary of Rio Tinto, and is located in the Northern Territory. It has a current production capacity of around 5,000 tonnes of uranium oxide per annum, producing around 10 per cent of the world's uranium supply. The mine employs approximately 500 workers, including nearly 100 Indigenous employees. Ranger first came into operation in the early 1980's and has gone through various expansions and redevelopments. There are plans for a further expansion of the mine that will extend the mine life to around 2020, add an additional 400 tonnes of production capacity per annum and create additional jobs. Exports from the Ranger mine are contracted to go to energy utilities in Japan, South Korea, UK, France, Germany, Spain, Sweden and the USA.
- Olympic Dam** — The BHP Billiton (BHPB) owned Olympic Dam mine in South Australia is predominantly a copper mine, but has Australia's largest reserves of uranium oxide as well as being one of the world's largest mines. Olympic Dam has a total mining capacity of 231,000 tonnes of uranium oxide (proved, probable, reserves). It has a production capacity of 4500 tonnes of uranium oxide per annum, although in recent years has produced well below this.<sup>8</sup> BHPB is currently exploring the business case for a

<sup>8</sup> RET, 2008

multi-staged expansion of the mine, which would see uranium production rise to a peak of 19,000 tonnes per annum and Olympic Dam become the largest uranium mine in the world.

- *Beverley* — The Beverley mine is owned by Heathgate Resources and is located in South Australia. At full production, Beverley mine produces around 1,000 tonnes of uranium oxide annually. The mine began commercial production in 2001 and Beverley was Australia's first *in situ* leach (ISL) mine. Exports from the Beverley mine are contracted to go to energy utilities in the USA, Europe and Japan. An extension of the Beverley mine was approved under the EPBC Act in August 2008.

A fourth mine, the Honeymoon mine in South Australia, is scheduled to begin production in 2009. Owned by UraniumOne, Honeymoon will be a new ISL mine and is planned to produce an estimated 400 tonnes of uranium oxide per annum. The mine has a total capacity of 2,900 tonnes of uranium oxide, with an average uranium grade of 0.24 per cent.<sup>9</sup>

## Recent trends in exploration

In response to the recent increase in uranium prices, total exploration expenditure has increased significantly across Australia. Expenditure in 2006–07 was reported to be \$114 million, which was more than five times the total expenditure reported in 2004–05<sup>10</sup>.

Major exploration occurred in the Northern Territory and South Australia, and was undertaken by mature multi-national enterprises, such as Cameco (Canada) and Areva (France), as well as a number of junior miners. Both BHPB and ERA also invested in exploration of currently mined resources. Exploration expenditure in the Northern Territory and South Australia was \$30.1 million and \$63.8 million, respectively. In the Northern Territory, exploration has focused on the Alligator Rivers Region, Western Arnhem Land and Ngalia Basin. In South Australia, exploration activities continued in the Gawler Craton–Stuart Shelf region and the Frome Embayment.

At present there are several prospects for further development in South Australia. These include:

- Mount Gee mine development
- Crocker Well and Mount Victoria mine developments
- Four Mile mine development

In the Northern Territory, prospects for further uranium mine development include:

- Angela and Pamela deposit
- Napperby deposit
- Mount Fitch deposit
- Bigrlyi deposit
- Nolans Bore deposit (this is a rare earths project including uranium).

<sup>9</sup> UraniumOne, 2008, *Honeymoon Project*, UraniumOne, [www.uranium1.com/indexu.php?section=uranium%20projects&page=5](http://www.uranium1.com/indexu.php?section=uranium%20projects&page=5) [January 2008], Adelaide

<sup>10</sup> ABS, 2008, *Mineral and Petroleum Exploration*, December 2007, cat no. 8412, <http://www.ausstats.abs.gov.au>

While the ongoing bans on uranium mining in Queensland and (and until recently Western Australia) represented a barrier to exploration, these States, too, saw an increase in total exploration expenditure:

- exploration in Queensland increased from \$0.4 million in 2004–05 to \$7.5 million in 2006–07<sup>11</sup>. The area around Mt Isa was the most active exploration area in Queensland, including the areas where previous discoveries have been made such as Valhalla, Skal, Andersons, Mirrioola, Watta, Warwai and Bikini
- Western Australia also experienced an increase in exploration expenditure in uranium mining, from a low of around \$0.3 million in 2004–05 to \$9.2 million in 2006–07. Exploration in the first quarter of 2007–08 has been the highest in recent years, reaching \$6.6 million

Prospective opportunities for further uranium discoveries in Australia are significant due to Australia's geology and technological improvements making it less expensive to mine at greater depths.

## Future prospects

On the demand side, the future for Australia's uranium industry appears bright. A recent report published by the Australian Uranium Association suggests that after a twenty-year downturn, the nuclear power industry globally is enjoying a renaissance. As well as the availability of new designs of reactors becoming available, with in-built safety features and greater efficiency, this is due to two major factors: concerns about energy security and climate change. Over 350 reactors worldwide are either under construction, being planned or being examined in terms of feasibility. Under the most optimistic assumptions, the report suggests that Australia's exports of uranium could nearly quadruple by 2030.<sup>12</sup>

Other things being equal, Australia's plentiful uranium reserves give it a strong competitive advantage in the global uranium market. Australia also enjoys:

- developed nation status and political stability
- a strong reputation for quality and reliable product supply
- comprehensive safety standards
- a reputation for strong environmental management programs
- a longstanding and consistent commitment to non-proliferation.

The global market is intensely competitive, however, and Australian firms cannot rely on their natural endowments alone to succeed. As key competitor nations such as Kazakhstan and Namibia, for example, develop their resources, buyers face low switching costs and will seek to both diversify their sources of supply as well as minimise the cost of those supplies.

Offsetting Australia's strengths, there appear to be a number of inefficiencies in the regulatory framework for uranium mining in Australia that, other things being equal, will reduce the competitiveness of local producers in the global market. While the current regulatory framework is effective in maintaining high levels of environment protection and radiation safety standards, the community's perceptions of risks surrounding uranium mining have been a significant barrier to the potential expansion of the uranium mining sector.

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<sup>11</sup> Data incomplete as a result of some unpublished data.

<sup>12</sup> Australian Uranium Association, *Outlook for the Uranium Industry*, a report by Deloitte Insight Economics, May 2008.

Looking forward, continuation of an inefficient regulatory regime that imposes excess costs on industry may prevent the realisation of the full economic potential embodied in Australia's uranium resource. Exploration of this issue, and in particular, ways in which appropriate regulatory reform could reduce inefficient barriers to growth, is the subject of the remainder of this report.

## 1.4 This report

The methodology for this review comprised three stages:

- data collection and literature review — the review commenced with a review of the key existing data and literature in relation to the regulation of uranium mining, in Australia and, where relevant, internationally
- stakeholder consultations — an important phase of the review was a major round of stakeholder consultations with key industry, government and community stakeholders at Commonwealth and State/Territory level (a full list of those consulted is provided at Appendix A)
- analysis and reporting — following the data collection and consultative phase, an analysis of the major issues, and possible means of addressing these, was undertaken. In particular, a number of options for reform were developed. The results of this analysis are presented in this Report.

The remainder of this report is structured as follows:

- Chapter Two provides a map of the current regulatory arrangements for uranium mining in Australia
- Chapter Three identifies key issues with the current regulatory system and identifies the 'top ten' opportunities for effective regulatory reform
- Chapter Four outlines some principles for the regulation of uranium mining
- Chapter Five proposes a range of reforms to the current regulatory framework.

The summary, conclusions and recommendations are presented at the beginning of the report.



## 2 A map of the current regulatory framework

*This chapter sets out the current regulatory arrangements for uranium mining, categorised according to the varying rationale that exist for government involvement in the sector. Regulations applying at the Commonwealth, State and Territory level are discussed in turn.*

### 2.1 Overview of existing regulation

Governments have a legitimate role in regulating the activities of industry where those activities give rise to concerns about the well-being of either participants in the industry, or of the community more broadly. In relation to mining, the government also has a significant public interest role in managing access to limited and valuable publicly-owned resources. Chapter 4 discusses in detail the rationale for regulating in the area of uranium mining, but in brief, regulation of uranium mining in Australia is justified by:

- the obligation on mining companies to mine Australia's valuable resources in a responsible manner, and to provide a financial return to the Australian community in return for ***access to the uranium resource***
- the need to ensure ***protection of the environment***, particularly in sensitive areas
- ***Indigenous land rights and native title issues*** in areas in which mining activity is taking place
- ***occupational health and safety*** concerns associated with mining activities
- ***radiation protection issues***<sup>13</sup> applying to workers along all parts of the uranium supply chain, and to local communities more broadly
- the ***risks of proliferation*** of nuclear materials. In particular, safeguards established under the Australian commitment to the international non-proliferation treaty (NPT) aim to ensure that the use of Australia's exported uranium is only for peaceful and non-military applications.

The first four of these drivers for regulation apply to mining activities generally and are not specific to the uranium sector. However radiation protection and proliferation issues (as well as those aspects of environment protection that derive from radiation) are almost unique to uranium mining and necessitate the implementation of a separate and specific framework for regulating uranium mining in Australia.

For the purposes of this review, the 'uranium mining industry' is defined as *the exploration, mining, transport to export, and mine rehabilitation* of uranium. The regulatory framework for the uranium mining industry is composed of Commonwealth, State and Territory legislation applying to each of these aspects of the uranium supply chain. Current Commonwealth policy allows for both the exploration and mining of uranium. At the State

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<sup>13</sup> Many of the environment protection issues associated with uranium mining are also issues of radiation protection. There is therefore substantial cross-over in the 'environment' and 'radiation protection' rationale for regulation of the industry.

and Territory level, South Australia, the Northern Territory, Tasmania and Western Australia allow both the exploration and mining of uranium, while Queensland only allows exploration, and Victoria and New South Wales do not permit either uranium exploration or mining. Current policies as presented by law firm Clayton Utz are shown in Box 2.1, noting that the ban on mining in Western Australia has now been removed.

**Box 2.1**

URANIUM EXPLORATION AND MINING IN AUSTRALIAN STATES AND TERRITORIES, JULY 2008

**Overview of States and Territories Position on Uranium Mining**

| Jurisdiction                 | Exploration | Mining  | Legislation or Policy  |
|------------------------------|-------------|---|--|
| South Australia              | Yes         | Yes   | Legislation: Mining Act 1971 (SA), s 10A   |
| Northern Territory           | Yes         | Yes   | Legislation: Mining Act 1980 (NT) reservation to the Federal Government for uranium (s175). Memorandum of Understanding between the Northern Territory and the Federal Government  |
| Tasmania                     | Yes         | Yes   | Mineral Resources Development Act 1995 includes uranium in the definition of minerals  |
| Queensland                   | Yes         | No  | Policy (Mineral Resources Act 1989 (Qld) silent on uranium)  |
| Western Australia            | Yes         | No  | Policy (Mining Act 1978 (WA) legislation silent on uranium)  |
| New South Wales              | No          | No<br>(subject to very limited circumstances) | Legislation: Uranium Mining and Nuclear Facilities (Prohibitions) Act 1986 (NSW), s 7<br>(allowed if in the course of mining for other mineral, reasonable grounds for believing that the Uranium does not exceed 0.02% of total material removed and conditions in regulations are complied with)   |
| Victoria                     | No          | No<br>(subject to very limited circumstances) | Legislation: Nuclear Activities (Prohibitions) Act 1983 (VIC), s 5<br>(allowed by mining title holder if in the course of mining for other mineral, the Uranium does not exceed 0.02% or Thorium does not exceed 0.05% of total material removed, material treated in prescribed manner and conditions imposed by Governor in Council are complied with - s 6) |
| Australian Capital Territory | N/A         | N/A   | Minerals (including uranium) reserved to the Federal Government. Legislation silent  |

**CLAYTON UTZ**

Note: As of November 2008, uranium mining is no longer banned in Western Australia.

Adapted: Clayton Utz Powerpoint: *Regulation of Uranium Mining in Australia* (23 July 2008)

Across all types of mining activities, States and Territories hold regulatory responsibilities in the areas of mining operations and the environment, and the Commonwealth has a specific role in environmental protection in cases of national environmental significance previously under the *Environment Protection (Impact of Proposals) Act 1974* (EPIP Act) and now under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).<sup>14</sup> Arrangements between the Commonwealth and relevant States/Territories in relation to uranium mining are complicated by:

- the Commonwealth's national and international responsibilities for the management of some aspects of nuclear activities. This includes responsibilities in relation to 'nuclear actions' under the EPBC Act, as well as in relation to overseeing radiation protection and proliferation risks

<sup>14</sup>

For all intents and purposes, the EPBC Act has replaced the EPIP Act.

- the Commonwealth's specific responsibilities in relation to the Northern Territory, where it retains ownership of the uranium resource.

The resulting regulatory framework for uranium is a joint one where the States/Territories and the Commonwealth work in partnership, with the States and Territories overseeing day-to-day mining operations as well as many of the approvals processes, and the Commonwealth having an interest in environmental assessment, oversight of the Territories and export controls.

## 2.2 Commonwealth regulation<sup>15</sup>

Over the years, the Commonwealth Government has introduced a number of laws that have a profound impact on the development of Australia's uranium industry (see Table 2.1 below). These affect each of the six major regulatory issues for the sector, namely:

- access to the resource
- environment protection
- Indigenous land rights
- occupational health and safety
- radiation protection
- proliferation risks.

The major intent and day-to-day implementation of each major legislative tool is then discussed briefly.

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<sup>15</sup> The remainder of this chapter draws on the Senate report, Environment, Communications, Information Technology and the Arts: *Regulating the Ranger, Jabiluka, Beverley and Honeymoon uranium mines*, October 2003.

Table 2.1

## COMMONWEALTH REGULATION OR ACTIVITIES OF URANIUM MINING

| Relevant legislation   | Relevant authority   | Major intent  | Mines affected  |
|--|--|---|---|
| <b>ACCESS TO THE RESOURCE</b>  |  |   |   |
| <i>Atomic Energy Act 1953</i>  | Minister for Resources (RET)   | Vests in the Commonwealth ownership of all uranium found in the Territories.<br><br>Authorisation of uranium mining in the Ranger Project Area.<br><br>Requires those who discover prescribed substances in any part of Australia to notify the Commonwealth. | All NT mines  |
| <b>ENVIRONMENT PROTECTION</b>  |  |   |   |
| <i>Customs (Prohibited Exports) Regulations 1958 under Customs Act 1901</i>                          | Minister for Resources (RET)   | Reg 9<br><br>To provide a licence for export of uranium.  | All   |
| <i>Environment Protection (Impact of Proposals) Act 1974 (Repealed but applies to certain mines)</i> | Action Minister which is Minister for Resources (RET) for uranium (Minister for the Environment (DEWHA) to advise) | Required Commonwealth environmental assessment in advance of mining activities, although did not provide approval for mines.<br><br>Environmental conditions placed on mines through export permissions.  | Ranger<br>Jabiluka<br>Olympic Dam<br>Beverley<br>Honeymoon                                    |
| <i>Environment Protection and Biodiversity Conservation Act 1999</i>                                 | Minister for the Environment (DEWHA)<br><br>(The Minister for DEWHA must consult with other relevant Ministers)    | Provides the Commonwealth with environmental jurisdiction in seven areas of 'national environmental significance', including nuclear actions.<br><br>Requires Commonwealth environmental approval and assessment process in advance of mining activities.     | Olympic Dam expansion<br>Beverley expansion<br>All future mine developments                   |
| <i>Environment Protection (Alligator Rivers Region) Act 1978</i>                                     | Minister for the Environment (DEWHA)   | Provides for environmental protection measures for the Alligator Rivers Region (ARR)<br><br>Established the Office of the Supervising Scientist (OSS) now the Supervising Scientist Division (SSD)<br><br>Established ARRAC and ARRTC                         | Ranger<br>Jabiluka<br>Nabarlek<br><br>Future mine developments in the ARR                     |
| <b>INDIGENOUS LAND RIGHTS</b>  |  |   |   |
| <i>Aboriginal Land Rights (Northern Territory) Act 1976</i>  | Minister for Indigenous Affairs (FaHCSIA)  | Established Land Councils to represent interests of Aboriginal traditional owners.<br><br>Sets out conditions for access to Aboriginal land.  | All exploration and mining on Aboriginal land in the NT scheduled and under claim under ALRA. |
| <i>Native Title Act 1993</i>   | Attorney-General   | Native title issues required to be resolved   | All exploration   |

| Relevant legislation   | Relevant authority                  | Major intent  | Mines affected                             |
|--|-------------------------------------|---|--|
|  | (Cth)                               | prior to the granting of a mineral lease in relevant jurisdictions  | and mining on land subject to native title |
| <b>OCCUPATION HEALTH AND SAFETY</b>                                |                                     |   |  |
| No directly relevant CW legislation                                |                                     |   |  |
| <b>RADIATION PROTECTION</b>  |                                     |   |  |
| <i>Australian Radiation Protection and Nuclear Safety Act 1998</i> | Minister for Health (ARPANSA)       | <p>To protect the health and safety of people, and to protect the environment, from the harmful effects of radiation.</p> <p>Regulates Commonwealth activities, and coordinates the National Codes that are implemented by States/Territories.</p> <p>Relevant Codes:</p> <ul style="list-style-type: none"> <li>• Code of Practice and Safety Guide for Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing (2005)</li> <li>• Code of Practice for the Safe Transport of Radioactive Material (2008)</li> <li>• Radiation Protection Series 1 - Recommendations for Limiting Exposure to Ionising Radiation (1995) and National Standard for Limiting Occupational Exposure to Ionizing Radiation (republished 2002).</li> </ul> <p>Note: the Mining Code 2005 is adopted into the relevant state or territory legislation – while the Act itself is not directly applied., States and Territories require mine licences to meet Mining Code requirements which therefore comply with ARPANSA</p> | All  |
| <b>PROLIFERATION</b>   |                                     |   |  |
| <i>Nuclear Non-Proliferation (Safeguards) Act 1987</i>             | Minister for Foreign Affairs (ASNO) | <p>Ensures security of, and carries out nuclear material accounting and control functions for, nuclear materials within Australia</p> <p>Ensure the Safeguards Act gives effect to Australia's obligations under the NPT; Safeguards Agreement and Additional Protocol with the IAEA; agreements between Australia and various countries concerning transfers of nuclear material; and the Convention on the Physical Protection of Nuclear Material (CPPNM),</p> <p>Provides permits for storage, transport and possession of uranium.</p>   | All  |

## Access to the resource

### *Atomic Energy Act 1953*

The majority of the *Atomic Energy Act 1953* has been repealed and replaced under other acts of parliament, primarily the *Australian Nuclear Science and Technology Organisation Act 1987*. However, the main remaining sources of importance of the *Atomic Energy Act 1953* are that:

- under Section 35, it establishes Commonwealth ownership of all uranium found in the territories of Australia
- it outlines the authorisation of uranium mining in the Ranger Project Area of the Northern Territory. Energy Resources of Australia (ERA) is required to comply with the Commonwealth Environmental Requirements for the Ranger mine as attached to the Authority issued under Section 41 of the Act.

The Act also requires that the discovery of prescribed substances, including uranium, be reported by notice in writing to the relevant Commonwealth Minister within one month of making the discovery, or of the substance becoming a prescribed substance. This power is delegated to Geoscience Australia.

## Environment protection

Under the May 1992 Intergovernmental Agreement on the Environment (IGAE) between the Commonwealth and the States/Territories the Commonwealth has special responsibilities in relation to environment protection regulation across Australia. The aims of the IGAE were to support a cooperative national approach to the environment; provide a better definition of the roles of the respective governments; result in a reduction in the number of disputes between the Commonwealth and the States and Territories on environment issues; and provide greater certainty of Government and business decision making; and better environment protection.<sup>16</sup>

Following this, in November 1997, COAG agreed to a statement on *Commonwealth/State Roles and Responsibilities for the Environment*. Key aspects of the agreement were incorporated into the EPBC Act, under which the Commonwealth Government maintains a role in protecting matters of national environmental significance. The EPBC Act facilitates the making of bilateral agreements between the Commonwealth and the States and Territories to accredit their environmental assessment and approvals processes for proposed developments. Assessment bilateral agreements are in place with Queensland, Western Australia, Tasmania, New South Wales, South Australia and the Northern Territory but are yet to be completed with Victoria and the Australian Capital Territory. COAG has subsequently committed to the development of a more harmonised and efficient system of environmental assessment and approval as soon as possible.<sup>17</sup>

Finalising the outstanding assessment bilateral agreements has been identified as a COAG priority. COAG has agreed that Senior Officials, working closely with officials from environmental agencies, report back with further strategies to improve and streamline environmental approvals processes, within the existing architecture of the EPBC Act.

The Commonwealth's regulation of environmental protection of uranium mining takes three primary forms:

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<sup>16</sup> Accessible at <http://www.environment.gov.au/esd/national/igae/index.html>

<sup>17</sup> COAG 14 July 2006, Communiqué to address regulatory reform in the area of environment assessment and approvals processes.

- the Ranger mine is overseen under the *Environment Protection (Alligator Rivers Region) Act 1978* which established the Supervising Scientist Division (SSD) of DEWHA to monitor the environmental impacts of uranium mining on Kakadu National Park. Future mines in the Alligator Rivers Region of the Northern Territory would be subject to this Act
- all mines established prior to 1999 were assessed for environmental impacts under the *EPIP Act*. Under this model, Commonwealth environmental conditions are imposed on mine operators via export controls enforced under the *Customs (Prohibited Exports) Regulation 1958*, by RET. The Ranger, Jabiluka, Olympic Dam, Beverley and Honeymoon mines were assessed under EPIP
- mines established after July 2000 fall under the EPBC Act. Under this model, environmental conditions are imposed on mines as licence conditions imposed by DEWHA. The Olympic Dam expansion, the Beverley extension and any future mine developments or extensions or expansions to existing mines will fall under the EPBC Act.

#### *Environment Protection (Alligator Rivers Region) Act 1978*

The Alligator Rivers Region in the Northern Territory, which includes the Ranger site, is subject to oversight arrangements established under the *Environment Protection (Alligator Rivers Region) Act 1978*. This Act established the Office and function of the Supervising Scientist — now known as the Supervising Scientist Division (SSD) — the Alligator Rivers Region Advisory Committee (ARRAC) and the Alligator Rivers Region Technical Committee (ARRTC). The purpose of these bodies is:

- *SSD* — the Supervising Scientist Division supervises, on behalf of the Commonwealth Government, the environmental aspects of uranium mining in the Alligator Rivers Region of the Northern Territory. It participates in the regulatory processes of the Northern Territory Government and directly reviews the environmental performance of uranium mines in that region. The SSD may, on request of the Commonwealth Environment Minister, provide scientific and technical advice on environmental matters outside the Alligator Rivers Region, where it is appropriate for the Supervising Scientist to do so.
- *ARRAC* — to facilitate communication between community, government and industry stakeholders on environmental issues associated with uranium mining in the Alligator Rivers Region.
- *ARRTC* — to perform reviews of the research and monitoring programs relevant to uranium mines in the region.

The responsibility for the regulation of environmental impacts of uranium mining in the Northern Territory is shared between the Commonwealth and Northern Territory Governments through a series of Intergovernmental Working Arrangements. These were last updated in the 2005 *Memorandum of Understanding between the Commonwealth of Australia and the Northern Territory of Australia in Relation to Working Arrangements for the Regulation of Uranium Mining*, signed by the Commonwealth Minister for Resources and Minister for Environment, and by the Northern Territory Minister for Mines and Energy. As a result of these working arrangements, the Department of Primary Industries, Fisheries and Mines (DRDPIFR) in the Northern Territory is the day to day regulator of uranium mines and also works with DEWHA through the SSD which monitors environmental performance at the Ranger mine.

In addition to ARRAC and ARRTC, Minesite Technical Committees (MTCs) are established under the Commonwealth – Northern Territory MOU to oversee the regulation of activity at the Ranger, Jabiluka and Nabarlek mines. The MTCs are chaired by the NT Government (DRDPIFR) and include representatives from the relevant company, the NLC, and the Commonwealth Government (SSD and RET). The role of the MTCs is to provide advice to DRDPIFR in defining, establishing and maintaining best mining practice in relation to site-specific technological, scientific and environmental factors and constraints.

#### *Environment Protection (Impact of Proposals) Act 1974*

The three operational uranium mines in Australia — Ranger, Beverley and Olympic Dam — were assessed (although not approved) under the EPIP Act. Export licences were issued by RET taking into account the results of the EPIP Act assessments. In the absence of any other appropriate legislative power in relation to pre-EPBC Act mines, this process allows the Commonwealth to fulfil its obligations in relation to environment protection under the 1992 COAG Agreement in relation to the environment.

This legislation has effectively been supplanted by the EPBC Act and any significant expansions or modifications of an existing mine — including planned expansions at Olympic Dam and Beverley — have triggered the EPBC Act.

#### *Environment Protection and Biodiversity Conservation Act 1999*

The *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) is the principal Commonwealth legislation affecting the mining, use and disposal of uranium. The key purpose of the Act is to clarify the matter of Commonwealth jurisdiction in seven areas of national environmental significance. Nuclear actions are one of these areas of national environmental significance — where the mining and milling of uranium are deemed by the Act to be a nuclear action.<sup>18</sup> The others are:

- world heritage areas
- national heritage places
- wetlands of international importance
- threatened species and ecological communities
- migratory species
- Commonwealth marine areas.

There is a two stage process to the practical implementation of the EPBC Act:

- the first stage is a Referral Process that is used to determine whether or not a proposed action requires approval under the EPBC Act. The decision on whether or not the action requires approval is (usually) made within 20 business days, and includes a 10 day public comment period. The decision may also determine that an action is clearly unacceptable
- the second stage is the Assessment and Decision process that determines whether an action may proceed or not. Usually, if sufficient information is provided in the referral, a decision on the approach to be used for the assessment is made on the same day as the

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<sup>18</sup> Department of the Environment and Water Resources, 2007, *Guide to the EPBC Act*.



decision that the action requires approval. In order to make a decision, there are five assessment methods which may be used:

- an accredited assessment
- assessment on information contained in the referral
- assessment on preliminary documentation, including the referral form and any other relevant material identified as being necessary to adequately assess a proposed action
- assessment by way of an Environmental Impact Statement (EIS) or Public Environment Report (PER)
- assessment by Public Inquiry.

According to DEWHA's Guide to the EPBC Act, all nuclear actions — including the mining and milling of uranium — should be referred to DEWHA for a decision on whether approval is required. A nuclear action will require approval if it has, will have, or is likely to have a significant impact on the environment:

A 'significant impact' is an impact which is important, notable, or of consequence, having regard to its context or intensity. Whether or not an action is likely to have a significant impact depends upon the sensitivity, value, and quality of the environment which is impacted, and upon the intensity, duration, magnitude and geographic extent of the impacts... to be 'likely', it is not necessary for a significant impact to have a greater than 50 per cent chance of happening; it is sufficient if a significant impact on the environment is a real or not remote chance or possibility. If there is scientific uncertainty about the impacts of an action and potential impacts are serious or irreversible, the precautionary principle is applicable. Accordingly, a lack of scientific certainty about the potential impacts of an action will not itself justify a decision that the action is not likely to have a significant impact on the environment.

Department of the Environment and Water Resources, 2007, *Guide to the EPBC Act*.

Where a nuclear action has, will have, or is likely to have a significant impact on the environment approval must be sought from the Commonwealth Environment Minister. The action must then undergo a Commonwealth environmental assessment and approval process — normally using either an EIS or a PER — before it can proceed.

The triggering of an action under EPBC Act may result in a trigger of a State's or Territory's own environmental approvals processes. Where this occurs, the assessment and approval process under the EPBC Act can generally be undertaken in parallel with State and Territory governments as is occurring currently in arrangements between the Australian and South Australian governments to manage assessment of the proposed Olympic Dam expansion. As noted earlier, under Section 45 of the EPBC Act, the Commonwealth Government has entered into bilateral agreements with New South Wales, the Northern Territory, Queensland, Tasmania, South Australia and Western Australia to accredit the environment assessment processes in these States. These bilateral agreements mean that the Commonwealth is able to rely — to a large degree — on State or Territory environmental assessment processes and, in limited circumstances, State or Territory approvals. The State or Territory will provide an assessment report to the Commonwealth Environment Minister, who retains ultimate responsibility for Commonwealth environmental approvals (in addition to the State Minister's approval).

The purpose of the bilateral agreements is to reduce duplication in the environmental assessment and approvals process. This does not mean that the Commonwealth's role is

necessarily a hands-off one. Even where a bilateral agreement for parallel assessment procedures is in place, the Commonwealth retains an active role in the environmental assessment process, with both Commonwealth and State agencies providing sign-off at multiple stages throughout the process.

In practice, the Commonwealth's role under the EBPC Act is managed by DEWHA. DEWHA provides significant inputs into the approvals process for new mines, ultimately attaching relevant conditions to the approval. In general, DEWHA aims to align its conditions with the conditions likely to be imposed by the State, however both sets of conditions — even where they are very similar — are legislatively required to be attached to relevant licences. Once mines are approved, DEWHA has an on-going role in auditing environmental performance, although it generally delegates hands-on monitoring and measuring activities to the State.

The role of the Commonwealth under the EPBC Act is strictly limited to matters affecting the environment, although to the extent that 'people' constitute an aspect of the environment, the Commonwealth's involvement can extend to matters beyond what is strictly considered to be the natural environment. For instance, radiation protection issues in a public health context could be considered 'environmental' issues under this broad definition. This is discussed further in Chapter 3.

In contrast to its hands-on role under EPIP Act, RET provides comments on applications as appropriate, particularly in relation to further environmental assessment for those mines which were previously approved under the EPIP Act

### *Customs Act 1901*

Commonwealth regulation in the areas of export controls is enacted via regulations made under the *Customs Act 1901*.

The *Customs Act 1901*, under regulation 9 of the *Customs (Prohibited Exports) Regulations 1958*, requires uranium producers to possess a licence in order to export uranium. The licence is issued by the Minister for Resources. The Minister can establish the conditions in the licence under which the export of uranium is allowed. This requirement applies to all uranium mine operators in Australia. In the past, environmental requirements developed under the EPIP Act assessment have been applied to export licences, in addition to standard conditions which apply Australia's safeguards policy for uranium exports.

Applications for uranium export permissions are assessed in conjunction with ASNO to ensure Australia's stringent safeguards policy is upheld. Each shipment of Australian uranium exports must be notified to RET and ASNO, and have RET's approval before leaving the country. Each shipment must also be declared with Australian Customs.

In addition to the export permission, ASNO requires completion of an application for possession, transport and storage of uranium ore concentrates. ASNO also requires shipping details, including the port of export and port of discharge, name of the vessel, nationality of the vessel's captain and crew, trans-shipment ports and the shipping route.

## Indigenous land rights

### *Aboriginal Land Rights (Northern Territory) Act 1976*

The *Aboriginal Land Rights (Northern Territory) Act 1976* (ALRA) provides for the granting of a fee simple interest in certain lands to Aboriginal Land Trusts and for the claiming of unalienated crown land by those groups of Aboriginal people who can demonstrate that they are the traditional owners of such land. The Act also establishes Aboriginal Land Councils to administer Aboriginal land in the Northern Territory. The Land Councils are key partners with the government in the regulatory process for uranium mining because it is through them that the required traditional stakeholder consultations are organised and that funds can eventually be received by the relevant Aboriginal people on whose land the mining activity takes place. Under the Act, an exploration licence shall not be granted in respect of Aboriginal land unless the Land Council and the Minister responsible for mining leases gives consent<sup>19</sup>. Further terms and conditions for mining operations on Aboriginal land in the Northern Territory are set out in an agreement approved by the Commonwealth Minister for Indigenous Affairs.

The Act also makes specific provisions for the Ranger Project Area and the Alligator Rivers Region that protect the activities of existing miners (as these arrangements were established prior to the ALRA).

The Act is administered within the Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA).

### *Native Title Act 1993*

In most remote areas of Australia there is a strong possibility that the land is, or may be, subject to native title. The *Native Title Act 1993* provides for the protection and registration of native title interests as well as mechanisms for lodging and hearing of native title claims. The Native Title Act also provides a framework by which native title holders and claimants may enter agreements with persons and companies wishing to access and utilise land. Separate arrangements apply to ALRA land. The relevant operative provisions of the Act are administered by the Commonwealth Attorney-General's Department.

## Radiation protection

### *Australian Radiation Protection and Nuclear Safety Act 1998*

The *Australian Radiation Protection and Nuclear Safety Act 1998* (ARPANS Act) has the objective of protecting the health and safety of people and the environment from the harmful effects of radiation. The Act also establishes the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA), with its CEO as regulator of the Commonwealth entities and promoter of uniformity of radiation protection and nuclear safety policy and practices across jurisdictions. Under the Act, the responsibility for establishing and maintaining national Codes of Practice for radiation in Australia is vested in ARPANSA. The Act also establishes the Radiation Health Committee, which includes a radiation control officer from each State and Territory as a representative of that jurisdiction. The functions of the Radiation Health Committee are to develop, formulate and review national policies, codes and standards in relation to radiation protection.

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<sup>19</sup> Section 40, ALRA

The National Directory of Radiation Protection (NDRP) establishes the framework for radiation regulators across Australia and includes the Codes of Practice. These Codes of Practice are adopted by each jurisdiction within their existing legislative framework.

ARPANSA's functions include promoting uniformity of radiation protection and nuclear safety policy and practices across the Commonwealth, States and Territories, regulating radiation protection and nuclear safety aspects of all Commonwealth entities involved in radiation or nuclear activities and dealings as well as monitoring compliance with prohibitions related to the regulation of controlled material, controlled apparatus and controlled facilities.<sup>20</sup>

ARPANSA publishes the Radiation Protection Series, of which two publications apply to uranium mining. The codes are written to be referenced by state/territory legislation and have been adopted by all States/Territories. The two codes relevant to uranium mining are the Code of Practice for Safe Transport of Radioactive Material (2008) and Code of Practice and Safety Guide for Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing (2005). In addition to the Codes there are published Recommendations for Limiting Exposure to Ionising Radiation (1995).

- *Code of Practice for the Safe Transport of Radioactive Material (8 edition 2008)* — this code superseded the Code of Practice for the Safe Transport of Radioactive Substances 2001. It adopts the International Atomic Energy Agency's Regulations for the Safe Transport of Radioactive Material, as published in 2005. It is intended to establish uniform requirements for the safe transport of nuclear materials in Australia, and has been incorporated into state legislation in most states.
- *Code of Practice and Safety Guide for Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing (2005) ('the Mining Code')* — this code replaced the Code of Practice on Radiation Protection in the Mining and Milling of Radioactive Ores (1987) and the Code of Practice on the Management of Radioactive Wastes from the Mining and Milling of Radioactive Ores (1982). It establishes the requirements for radiation protection in mining and mineral processing industries and for the protection of human health and the environment from the effect of radioactive waste from mining and mineral processing. It is also intended to promote consistency of regulation across Australian jurisdictions. A requirement of the Code is the preparation of a Radiation Management Plan (RMP) and a Radioactive Waste Management Plan (RWMP), developed to provide for the proper management of radioactive waste arising from mining operations. The RWMP must include a plan for decommissioning the operation and the associated waste management facilities and rehabilitating the site.

### *Transport*

Uranium is classified as a Class 7 dangerous good under the Australian Dangerous Goods Code. This class applies to all radioactive substances, that is, substances that emit ionising radiation. The code is based on the UN Model Regulations on the Transport of Dangerous Goods.

Uranium oxide concentrate, or yellowcake ( $U_3O_8$ ), is transported from the mines to conversion plants in 200-litre drums packed into normal shipping containers. The transportation of uranium and its by-products is regulated by the States and Territories in accordance with the Code of Practice for the Safe Transport of Radioactive Material. The

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<sup>20</sup> ARPANSA submission to House of Representatives Standing Committee on Industry and Resources, *Australia's Uranium – Greenhouse friendly fuel for an energy hungry world*, November 2006, p. 512.

Code employs the International Atomic Energy Agency's Regulations for the Safe Transport of Radioactive Material. The physical protection of uranium transport is regulated by ASNO.

Currently, uranium is only shipped from ports in Adelaide and Darwin. There are restrictions on shipping uranium from ports in some other States.

### *Mine rehabilitation*

Waste management of uranium is associated with waste rock (mineralised waste and below economic grade materials) and tailings from mining operations, as well as materials and equipment used in the mining process. These waste items from uranium mining operations constitute a low level waste that requires careful management.

Tailings management is usually on a site-by-site basis, as it depends on the type of mining operation, i.e. ISL mining operations have different tailings requirements than pit or underground mining operations. Tailings management is typically covered under relevant State and Territory mining acts, but also forms an important part of the Commonwealth's environmental legislation.

The Code of Practice and Safety Guide for Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing (2005) provides guidance to the state/territory in regulating uranium mining including the radioactive wastes arising from the mine. Related Codes are the Code of Practice for Disposal of Radioactive Wastes by the User (1985) is only for 'relatively low levels of radioactivity, or radionuclides of short half-life, such as are generated by many current medical, industrial and research uses of radioactivity in Australia'.

The Code of Practice for the Near-Surface Disposal of Radioactive Waste in Australia (1992) could be used in exceptional circumstances such as the rehabilitation of abandoned mines where small amounts of tailings or other contaminated materials are involved.

## **Proliferation**

### *Nuclear Non-Proliferation (Safeguards Act) 1987*

The *Nuclear Non-Proliferation (Safeguards) Act 1987* relates to fulfilling Australia's requirements under the Treaty on the Non-Proliferation of Nuclear Weapons (NPT). Essentially, the purpose of the legislation is to ensure effective accounting, control and security of nuclear materials and associated items within Australia.

The Act established the *Australian Safeguards and Non-Proliferation Office (ASNO)*, whose responsibility is to ensure that Australia's obligations under the NPT, Australia's safeguards agreement and Additional Protocol with the International Atomic Energy Agency (IAEA), the *Convention on the Physical Protection of Nuclear Material (CPPNM)* and Australia's various bilateral safeguards agreements are met.

ASNO is responsible for implementing the treaty requirements as they relate to uranium mining and associated transport. The Act requires a permit from ASNO for possession and transport of nuclear material, including uranium. Permits issued by ASNO may contain restrictions and conditions including the measures required to ensure the physical security of the nuclear material, the steps to be taken and records to be kept in order to account for the nuclear material.

This Act has particular provisions in relation to the transport security of uranium. Permits issued by ASNO may place restrictions on the transport of uranium including the transportation means, route, the measures required in order to ensure the physical security of the material, the records to be kept and reporting requirements in order to ensure compliance. ASNO must approve a transport plan before transporting uranium. The plan must outline the locations of origin and destination within Australia, as well as the route to be used.

In order to comply with the Treaty on the Non-Proliferation of Nuclear Weapons, all Australian nuclear material, including uranium, must be accounted for. ASNO requires inventory balances to be reported on every six months, ending 30 June and 31 December each year. Inspections and audits are carried out in order to ensure compliance.

### *Bilateral Safeguards Agreements*

Australia requires a Bilateral Safeguards Agreement to be in place for countries to receive Australian uranium exports. Such a requirement complements the NPT safeguards obligations each bilateral partner country has under its safeguards agreement with the IAEA. Australia has established 22 bilateral safeguards agreements with 39 countries.

Table 2.2 outlines the countries with which Australia has bilateral safeguards agreements.

**Table 2.2**

#### AUSTRALIA'S NETWORK OF BILATERAL SAFEGUARDS AGREEMENTS

| Country                    | Date of Entry into Force | Country                         | Date of Entry into Force |
|----------------------------|--------------------------|---------------------------------|--------------------------|
| Republic of Korea          | 2 May 1979               | Switzerland                     | 27 July 1988             |
| United Kingdom             | 24 July 1979             | Egypt                           | 2 June 1989              |
| Finland                    | 9 February 1980          | Russian Federation <sup>3</sup> | 24 December 1990         |
| United States <sup>1</sup> | 16 January 1981          | Mexico                          | 17 July 1992             |
| Canada                     | 9 March 1981             | New Zealand                     | 14 September 1999        |
| Sweden                     | 22 May 1981              | Czech Republic                  | 17 May 2002              |
| France                     | 12 September 1981        | Hungary                         | 15 June 2002             |
| Euratom <sup>2</sup>       | 15 January 1982          | Argentina                       | 12 January 2005          |
| Philippines                | 11 May 1982              | China                           | 3 February 2007          |
| Japan                      | 17 August 1982           |                                 |                          |

Source: DFAT, *Australia's Network of Nuclear Safeguard Agreements*, available at [http://www.dfat.gov.au/security/nuclear\\_safeguards.html](http://www.dfat.gov.au/security/nuclear_safeguards.html), accessed 4 December 2007

1) Agreements have also been reached with the United States for cooperation on the Silex technology (24 May 2000) and for the transfer of uranium to the United States for enrichment and thereafter retransferred to Taiwan (17 May 2002).

2) Euratom is the atomic energy agency of the European Union. The agreement covers all 27 member states.

3) The agreement with the Russian Federation allows Australian Obligated Nuclear Material to be processed (conversion, enrichment or fuel fabrication) in Russia on behalf of other partner countries, but does not permit the use of Australian Obligated Nuclear Material by Russia. A new agreement with Russia was signed on 7 September 2007 but is not yet in effect.

The bilateral safeguards agreements impose additional requirements upon countries that are to receive Australian uranium exports, such as the requirement for Australia's consent for transfers, enrichment beyond 20 per cent and reprocessing. Under the bilateral agreements, purchasers of Australian uranium are required to identify and precisely account for Australian obligated nuclear material as it moves through the nuclear fuel cycle to ensure that Australian uranium does not contribute to, or enhance, military purposes.

## 2.3 South Australian regulation

The regulatory framework for uranium mining in South Australia is outlined in Table 2.3 below. In practice, the Department of Primary Industry, Resources SA (PIRSA) and the Radiation Protection Division of the SA Environment Protection Authority (RPD EPA) are responsible for the day-to-day management of uranium mining, with the Commonwealth playing a role in environmental assessment, export controls and management of proliferation risks.

**Table 2.3**  
SOUTH AUSTRALIAN REGULATION OF URANIUM MINING

| Relevant legislation  | Relevant authority  | Major intent  | Mines affected  |
|---|---|---|---|
| <b>ACCESS TO THE RESOURCE</b>   |   |   |   |
| <i>Mining Act 1971</i>  | Minister for Mineral Resources Development (PIRSA)              | To regulate all aspects of uranium mining in south Australia including Uranium Mining. A Mining Lease must be granted and a MARP must be approved before mining may commence. | All SA mines (except OD)  |
| <i>Mines and Works Inspection Act 1920</i>  | Minister for Mineral Resources Development (PIRSA)              | General provisions governing mining operations.   | All SA mines  |
| <i>Roxby Downs (Indenture Ratification) Act 1982</i>  | Minister for Mineral Resources Development (PIRSA)              | General provisions governing mining operations including environmental and radiation protection provisions.   | Olympic Dam   |
| <b>ENVIRONMENT PROTECTION</b>   |   |   |   |
| <i>Environment Protection Act 1993</i>  | Minister for Environment and Conservation (MEC)                 | Issues licences for relevant activities under the Act.<br><br>Specifies environment protection processes and conditions.  | Olympic Dam   |
| <i>Development Act 1993</i>   | Minister for Urban Development & Planning (PIRSA – Planning SA) | Requires an EIS for major projects.<br><br>Can attach conditions to mining lease and/or licence based on outcomes of environmental assessment process.                        | SA mines deemed to constitute 'major projects'                      |
| <i>Water Resources Act 1997, River Murray Act 2003, Natural Resources Management Act 2004</i> | Minister for Environment and Conservation (DWLBC)               | Provides permits for drilling of well holes.<br><br>Can attach environmental conditions to relevant approvals and authorisations.   | All SA mines (except OD where inconsistent with the Indenture Act)  |
| <i>Native Vegetation Act 1991</i>   | Minister for Environment and Conservation (DEH)                 | Can attach environmental conditions to relevant approvals and authorisations.   | All SA mines (Olympic Dam has an exemption under the Indenture Act) |
| <b>INDIGENOUS LAND RIGHTS</b>   |   |   |   |
| <i>Aboriginal Heritage Act 1988</i>   | Minister for Aboriginal Affairs and Reconciliation (DPC)        | Protection and preservation of Aboriginal heritage  | All SA mines  |



| Relevant legislation   | Relevant authority   | Major intent   | Mines affected |
|--|--|--|----------------|
| <i>Native Title (South Australia) Act 1994</i>   | Minister for Aboriginal Affairs and Reconciliation (DPC)   | Determination and protection of Native Title in South Australia  | All SA mines   |
| <b>OCCUPATION HEALTH AND SAFETY</b>  |  |  |                |
| <i>Occupational Health Safety and Welfare Act 1986</i>   | Minister for Industrial Relations (SafeWork SA)  | General provisions governing mining operations.  | All SA mines   |
| <i>Dangerous Substances Act 1979</i>   | Minister for Industrial Relations (SafeWork SA)  | General provisions governing mining operations.  | All SA mines   |
| <b>RADIATION PROTECTION</b>  |  |  |                |
| <i>Radiation Protection and Control Act 1982 (SA)</i>  | Minister for Environment and Conservation (SA)   | Provides licence to mine uranium subject to conditions.<br><br>Requires compliance with the Commonwealth Standards, Recommendations, or Codes of Practice in relation to uranium mining (ARPANSA).   | All SA mines   |
| <i>Codes of Practice under the National Directory for Radiation Protection (see Table 2.3 above under ARPANSA)</i> | Radiation Protection Branch (RPD) of the EPA designated under the Act as the "relevant regulatory authority" to grant approvals or authorisations in relation to: <ul style="list-style-type: none"> <li>• <i>Code of Practice and Safety Guide for Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing</i> (the 'Mining Code').</li> <li>• <i>Recommendations for Limiting Exposure to Ionising Radiation</i> (1995)</li> </ul> <p>EPA (RDP) is designated as the 'relevant regulatory authority' to grant approvals or authorisations in relation to the Code Of Practice for the Safe Transport of Radioactive Substances (1982)</p> | Protection of the health and safety of people and the environment through the Codes of Practice. Requires development and approval of a Radiation Management Plan (RMP) and a Radiation Waste Management Plan (RWMP).<br><br>Requires a detailed transport plan prior to issuing of permit and licences. | All SA mines   |

## Access to the resource

In addition to any Commonwealth requirements under the EPBC Act, there are presently four State-based approvals required to mine uranium in South Australia. They are a mining lease, a licence to mine and mill radioactive ores, a permit for the drilling of well holes and environmental approval.

### *Mining Act 1971*

A mining lease is required to mine uranium in South Australia under the *Mining Act 1971* and may be granted by the Minister for Mineral Resources Development following the assessment of the likely environmental impacts and resolution of any Native Title issues. As conditions of the mining lease, operators are required to produce a Mining and Rehabilitation Program (MARP). Under recently revised guidelines, the Environment Management and Monitoring Plan (EMMP) has been combined with the MARP.

### *Mining and Rehabilitation Program (MARP)*

In conjunction with obtaining a mining lease, the operator of a mine is required to develop a MARP, which is submitted to PIRSA. The MARP includes detailed specifications of the construction, operation and closure of the mine, and must be approved by the Minister before mining operations commence. The MARP is also used to establish appropriate environmental standards, and ensure that appropriate strategies and procedures are in place to meet the standards. Additionally, the South Australian Minister will also require a miner to enter into a bond to cover the present and future obligations in relation to rehabilitation of land disturbed by mining operations.<sup>21</sup>

The environmental issues, which should be addressed by the MARP, are based on risk on a case-by-case basis. For example:

- surface hydrology
- hydrogeology
- vegetation and landscape
- fauna
- meteorology
- waste management
- on-site chemicals
- rehabilitation.

PIRSA consults with all persons likely to be affected by the mining operation, and has the obligation to provide an assurance to the public that the established standards are being met. Companies are required to submit Mining and Rehabilitation Compliance Reports annually to ensure compliance with the requirements of the MARP and lease conditions.<sup>22</sup>

### *Environment Management and Monitoring Plan*

Operators of South Australia's operational uranium mines are also required to submit to the responsible Minister an EMMP. The EMMP is a plan for protecting, managing and rehabilitating the environment affected by the mining. This plan encompasses waste management, flora, fauna, groundwater spills and air emissions. As noted, it is understood that regulations will be revised to describe the MARP and incorporate the EMMP. The MARP is applied as a condition of the mineral lease.

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<sup>21</sup> Australian Government, Department of Prime Minister and Cabinet, *Uranium Mining, Processing and Nuclear Energy Review*, 2006, p. 121.

<sup>22</sup> Primary Industries and Resources SA, 2007, *Mining Approvals in South Australia*.

### *Mines and Works Inspection Act 1920*

Administered by PIRSA, the *Mines and Works Inspection Act 1920* provides broad responsibilities in administering mining activities in South Australia.

### *Roxby Downs (Indenture Ratification) Act 1982*

The Olympic Dam uranium mine site is also subject to specific legislation, dealing exclusively with that mine site. The *Roxby Downs (Indenture Ratification) Act 1982* (Indenture Act) sets out provisions specific to that site including areas such as royalties, the right to draw water and the provision of government infrastructure and services. The *Environment Protection Act 1993* and the *Mining Act 1971* are subject to the provisions of the Indenture Act. In line with this, the Act requires the operators of the Olympic Dam mine to comply with relevant Commonwealth and South Australian regulations in relation to operations at the mine particularly across radiation protection and environmental issues. In particular, the mine operators are required to develop and comply with an EMMP as part of this Act.

## Environment protection

### *Environment Protection Act 1993*

The *Environment Protection Act 1993* covers the radiation safety aspects of mines on the Environmental Protection Authority (EPA) of South Australia. The Act's objectives are to promote principles of ecologically sustainable development and with regard to these principles, ensure reasonable and practical measures are implemented to ensure the quality of the environment is protected, restored and enhanced. These objectives are enacted through measures in the Act, which balance the economic, social and physical well-being with the community's health and safety for immediate and future generations.

### *Development Act 1993*

Under Section 75 of the *Development Act 1993*, any proposed mining development that is of 'major social, economic or environmental importance' must be referred to the Minister for Urban Development and Planning. Planning SA — a division of PIRSA — is then required to carry out an environmental impact assessment in relation to the development, which may be combined with the Commonwealth's requirement for an EIS under the EPBC Act. The environmental assessment process results in the State Planning Minister advising the South Australian Mining Minister.<sup>23</sup> Past practice has been to prepare a joint environmental impact statement for the purposes of approval under State planning and Commonwealth environmental protection legislation.<sup>24</sup>

### *Other relevant environmental legislation*

In South Australia, permits were required under the *Water Resources Act 1997* before any well holes could be drilled. However, this has now been repealed and replaced by the *Natural Resources Management Act 2004*, which is administered by the South Australian Department of Water, Land and Biodiversity Conservation (DWLBC). DWLBC also

<sup>23</sup> Senate report, Environment, Communications, Information Technology and the Arts: *Regulating the Ranger, Jabiluka, Beverley and Honeymoon uranium mines*, October 2003, p 15.

<sup>24</sup> Australian Government, Department of Prime Minister and Cabinet, *Uranium Mining, Processing and Nuclear Energy Review*, 2006, p 120.

administer the *River Murray Act 2003*. The *Natural Resources Management Act 2004* may be relevant for some uranium mining developments. The *Native Vegetation Act 1991* for mining operations is administered by PIRSA under delegation from the Native Vegetation Council.

### *Stakeholder consultation*

As a result of Commonwealth conditions imposed on mine licences following an EIS process, a system of mandated consultative committees operates in South Australia. The system comprises Environment Consultative Committees (ECCs) for each operating mine — that is, Beverley, Olympic Dam and Honeymoon. The Committees are made up of:

- the mine operator
- Commonwealth representatives — DEWHA and RET
- South Australian representatives — PIRSA, RPD EPA, DWLBC.

The ECC for each mine meets bi-annually and deals with various technical and monitoring issues related to the environmental impact of each mine and monitors operational compliance with government conditions of approval.

In addition, quarterly meetings are held between the mine operator and South Australian representatives for the Olympic Dam and Beverley mines. In total therefore, six major meetings are held in relation to each mine every year.

## Occupational health and safety

Uranium mines in South Australia are also subject to the *Occupational Health, Safety and Welfare Act 1986*. This Act is the responsibility of SafeWork SA, a unit of the Department of Premier and Cabinet. The Act covers many of the operational requirements to undertake mining activities (not specific to uranium mining) in South Australia. SafeWork SA also administers the *Dangerous Substances Act 1979* which may be relevant in certain circumstances.

## Radiation protection

### *Radiation Protection and Control Act 1982*

A licence to mine or mill radioactive ores is required under the *Radiation Protection and Control Act 1982*, which is the principal piece of legislation for the control of all types of activities involving radiation and radioactive materials (including mining) in South Australia. Such a licence is subject to conditions that the State Minister may attach and have to comply with the Commonwealth Codes of Practice for uranium mining as these are adopted by the South Australian Government within its regulatory framework. As discussed, these codes require that uranium mines have a Radiation Management Plan (RMP) and a Radioactive Waste Management Plan (RWMP), approved by the government for the mining lease:

- *Radiation Management Plan (RMP)* — The RMP is established to provide measures for the control of radiation exposures of employees and members of the public from the mining or mineral processing operation
- *Radioactive Waste Management Plan (RWMP)* — the Mining Code also requires the establishment of a Radioactive Waste Management Plan to provide for the proper

management of radioactive waste and a plan for the decommissioning of the mine and the associated waste management and site rehabilitation.

Both the RMP and RWMP have requirements for quarterly and annual reports as well as auditing and self review. Incident reporting is also currently applied as part of the RMP. Both Plans are required to be approved to manage radiation issues associated with the different stages of mining and mineral processing, including exploration, construction, operation, decommissioning and rehabilitation.

The key regulatory body for the regulation of radiation protection issues in relation to uranium mining in South Australia is the Radiation Protection Division of the South Australian Environment Protection Authority (RPD EPA). RPD EPA is the designated 'relevant regulatory authority' in relation to the Commonwealth Government's Mining Code. The administration of the Mining Code is achieved by administrative agreement between the EPA and relevant agencies in SA and requires that RPD EPA consult with PIRSA and SafeWork SA in granting approvals or authorisations under the Mining Code.

The Act also establishes requirements for the health, safety and welfare of employees through the *Radiation Protection and Control (Ionising Radiation) Regulations 2000*. These regulations outline the requirements of an employer where employees may be exposed to radiation, including the mining of radioactive ores, as well as the duties of employees.

The regulations require employers to:

- prepare a radiation safety manual
- appoint a radiation safety officer
- provide information to employees regarding:
  - potential hazards of radiation to which the worker may be exposed
  - all safety arrangements that have been made to protect the worker
  - providing the worker with working rules to achieve health and safety outcomes
- issue personal monitoring devices to all employees
- prepare and keep personal radiation exposure records for each worker
- arrange and pay for medical examinations of workers not longer than two years apart.

### *Transport*

The transport of uranium or any other radioactive material is conducted in accordance with the Radiation Protection and Control (Transport of Radioactive Substances) Regulations 2003, which currently adopts the Commonwealth's Code of Practice for the Safe Transport of Radioactive Material (2001) and will be updated to apply the 2008 amendments. Before any shipment of uranium occurs, mine operators are required to obtain all necessary permits and licences from Australian and State Government authorities and must develop a detailed transport plan, which requires approval from Australian and State Government authorities. The Security and Emergency Management Office in the Department of the Premier and Cabinet (DPC) coordinates South Australian input into this plan.<sup>25</sup>

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<sup>25</sup> <http://www.uic.com.au/mineregulation.htm>

### *Incident reporting*

Uranium mining in South Australia is subject to stringent controls due to public concerns about the uses and physical characteristics of the end product. Relevant legislation for incident reporting includes:

- the *Radiation Protection and Control Act 1982* (the RPC Act) controls activities that involve radiation and radioactive materials in South Australia. The RPC Act provides for various categories of licence and registration. The primary condition applied to licences is a requirement for compliance with the Australian Government's 2005 Mining Code
- the *Mining Code* provides for a 'relevant regulatory authority' (RRA) to implement the provisions of the code and to grant approvals or authorisations. The RRA in South Australia is the RPD EPA, which administers the provisions of the code in close consultation with the Minerals and Energy Resources Division of PIRSA, and SafeWork SA in the Department for Administrative and Information Services
- SafeWork SA also has responsibilities under the *Mines and Works Inspection Act 1920*, the *Occupational Health, Safety and Welfare Act 1986*, and the *Dangerous Substances Act 1979*
- the *Mining Act 1971* and the *Mines and Works Inspection Act 1920* are the instruments under which the South Australian Minister for Mineral Resources Development regulates all mining activities in South Australia. Under these Acts, PIRSA has broad responsibilities in administering mining operations to achieve South Australian Government objectives and obligations.
- the *Criteria and Procedures for Recording and Reporting Incidents at SA Uranium Mines* specifies the requirements of an operator to record or report an incident in the event of an unplanned release of radioactive process materials within a plant or to the environment, or accidental exposure of a worker. Upon being notified of an incident, the regulator ensures that appropriate actions are taken to contain the spill, stakeholders have been advised of the incident and that information relating to the incident is made publicly available in an open and transparent manner

In 2002, an independent review of the incident reporting procedures for the uranium mining industry in South Australia was conducted (the Bachmann Review). As part of the review, a revised reporting procedure was established, and subsequently adopted, and has become known as the Bachmann reporting criteria. Regulations require an operator to record or report the incident as specified in *Criteria and Procedures for Recording and Reporting Incidents at SA Uranium Mines*. A sub-set of these requirements are summarised in Box 2.2, but briefly, they ensure that actions taken to contain a spill are appropriate, that all stakeholders have been advised of the incident, that the operator has taken appropriate remedial action, and that information relating to the incident is made publicly available in an open and transparent manner to ensure that public confidence is maintained. Further details of these regulations are provided in Appendix B.

**Box 2.2****SOUTH AUSTRALIAN INCIDENT REPORTING REQUIREMENTS**

Under the Bachmann reporting criteria the following recording and reporting conditions must be applied:

## Report:

- Any defect due to design or malfunction, or unexpected degradation, discovered in the mine, mill, plant, equipment or working procedure, which satisfy certain criteria such as being likely to lead to a reportable release of radioactive materials.
- Any release, or loss of control of radioactive process materials, liquids or wastes, which satisfy certain criteria such as worker exposure, environmental exposure or being above specified levels.
- Any unplanned dispersal to the atmosphere of any radioactive process materials through failure of a section of the plant or by an abnormal event (e.g. fire or explosion).

## Record:

- The results of an investigation which reveals any defect, due to design or malfunction, discovered in the mine, mill, plant, equipment or working procedure, that is likely to cause a significant increase in radiation exposure, together with the causes and resulting actions taken.
- Any release of radioactive materials in In Situ Leach (ISL) wellfields, process plants, Tailings Retention System (TRS) bundled areas, corridors and pipelines that are above specified levels.
- Any unexpected degradation or defect in ISL lateral lines that, unless remedied, is likely to lead to a reportable release of radioactive liquids.

Source: Bachmann 2002, *Report of Independent review of reporting for the SA Uranium mining industry*.

## 2.4 Northern Territory regulation

### *‘One mineral, many laws’*

A journal article in 2007 on the regulation of uranium mining in the Northern Territory is entitled, in part, “one mineral, many laws”. This is an accurate description of the issue. The problem arises largely as a result of legacy issues, even dating from the ‘surrender’ of the NT by South Australia to the Commonwealth in 1911.

While minerals were formally vested in the Crown via the Commonwealth, this was clarified and formalised in the case of uranium and thorium in the *Atomic Energy (Control of Materials) Act 1946* (Cth). When the Northern Territory was granted self-government in 1978, however, in the enabling legislation it was made clear that Commonwealth interests in minerals in the Territory were thereafter vested in the Territory. The exception, however, was “prescribed substances within the meaning of the *Atomic Energy Act 1953*”.<sup>26</sup>

In fact this law and the subsequent passage of the *Mining Act* (NT) and the *Mining Management Act* (NT) created a dual responsibility for uranium mining between the Territory and the Commonwealth. The grant and operation “of a mining interest in respect of uranium (and other prescribed substances) is subject to Territory law, but in exercising a discretion pursuant to that law the Territory Minister must abide by the wishes of the Commonwealth Minister.”<sup>27</sup>, in relation to the granting of a mineral lease. In effect though, the Northern Territory Government is the day to day regulator of uranium mines, with the Commonwealth Government's role limited to providing advice on granting of leases. The other Commonwealth role is in relation to ensuring there is no impact on the environment from uranium mines in the Alligator Rivers Region through SSD.

<sup>26</sup> *Northern Territory (Self-Government) Act 1978* (CTH), Subsection 69(4).

<sup>27</sup> Storey, Matthew (2007), “One Mineral – Many Laws: the Regulation of Uranium Mining in the Northern Territory”, *Australian Resources and Energy Law Journal*, Vol 26, Number 3, December, page 291.

Royalties from uranium mining at the Ranger mine as per the Ranger Government Agreement are payable to the Commonwealth, which then reimburses a proportion to the NT Government (1.25%) as per the 1978 MOU *In Respect of Financial Arrangements Between the Commonwealth and a Self Governing Northern Territory*. In addition, as the mine is on Aboriginal land, the remainder of royalties (4.25%) are paid into the Aboriginal Benefits Account for payment to parties including the Traditional Owners. For all other uranium mines in the NT, a new regime is being proposed which would allow for all royalties to be collected on behalf of the Commonwealth and retained by the NT Government, and in the case of Aboriginal land, an equivalent payment made by the Commonwealth to the Aboriginal Benefits Account.

In addition to these laws, the Commonwealth passed the *Environment Protection (Alligator Rivers Region) Act 1978*. This legislation was aimed at providing environmental protection in the area in Arnhem Land defined as the Alligator Rivers Region, containing the Ranger, Jabiluka, Koongara and Nabarlek mineral leases. The Act established the Office of the Supervising Scientist to undertake environmental oversight of uranium mining and also extended the functions of the Supervising Scientist to the provision of “scientific and technical advice outside the Region” where requested by the Commonwealth Minister and where such activities fall within the Commonwealth’s constitutional authority.<sup>28</sup> The Act also established two committees, an Advisory Committee and a Technical Committee. The regulatory framework for uranium mining in the Northern Territory is outlined in Table 2.4 below

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<sup>28</sup> Storey, Matthew, (2007), *Ibid*, page 299.



Table 2.4

## NORTHERN TERRITORY REGULATION OF URANIUM MINING

| Relevant legislation  | Relevant authority  | Major intent  | Mines affected                 |
|---|---|---|--------------------------------|
| <b>ACCESS TO THE RESOURCE</b>   |   |   |                                |
| <i>Mining Act</i>   | NT Minister for Primary Industry, Fisheries and Resources (DRDPFR)  | Provides mineral lease.<br>Can attach environmental conditions.<br>Allows for the NT Minister to provide consent for the operator to negotiate with the relevant Aboriginal Land Council under ALRA.<br>NT must consult with, and follow the advice of, the Commonwealth Minister for Resources on the granting of a mineral lease. | All NT mines except for Ranger |
| <i>Mining Management Act</i>  | NT Minister for Primary Industry, Fisheries and Resources (DRDPFR)  | Provides for General Authorisations for mining.<br>Regulates mining operations (replaces part of Uranium Mining (Environmental Control) Act 1979 (NT0 (UMEC)).<br>Mandates a regime of audits, inspections, investigations, monitoring and reporting to ensure compliance with agreed standards.                                    | All NT mines                   |
| MOU between the Commonwealth of Australia and the Northern Territory of Australia in Relation to Working Arrangements for the Regulation of Uranium Mining in the Northern Territory 2005 |   | Recognises responsibility for day-to-day regulation of uranium mining to the NT.  | All NT mines                   |
| <b>ENVIRONMENT PROTECTION</b>   |   |   |                                |
| As well as the <i>Environment Assessment Act</i> , some environmental provisions in general mining legislation  |   |   |                                |
| <b>INDIGENOUS LAND RIGHTS</b>   |   |   |                                |
| No relevant Territory legislation   |   |   |                                |
| <b>OCCUPATION HEALTH AND SAFETY</b>   |   |   |                                |
| <i>Workplace Health and Safety Act 2007</i>   | NT Minister Justice (DoJ)   | Regulates occupational health and safety, including inspections and audits, in workplaces, including mines  | All NT mines                   |
| <b>RADIATION PROTECTION</b>   |   |   |                                |
| <i>Radioactive Ores and Concentrates (Packaging and Transport) Act</i>  | NT Minister Justice (DoJ)   | Provisions governing the transport of uranium within the NT.  | All NT mines                   |
| <i>Mining Management Act (this enables the requirements of the Mining Code 2005)</i>  | NT Minister for Primary Industry, Fisheries and Resources (DRDPFR) designated under the Act as the "relevant regulatory authority" to | Requires development and approval of a Radiation Management Plan as a part of or in addition to a Mining Management Plan as required under the Act.   | All NT mines                   |

| Relevant legislation   | Relevant authority   | Major intent | Mines affected |
|--|--|--------------|----------------|
|  | grant approvals or authorisations in relation to: <ul style="list-style-type: none"> <li>• <i>Code of Practice and Safety Guide for Radiation Protection and Radioactive Waste Management in Mining and Mineral Processing</i> (the 'Mining Code').</li> </ul> |              |                |
| <b>PROLIFERATION</b>   |  |              |                |
| No relevant Territory legislation other than those provisions relating to transport and storage of uranium in the above. |  |              |                |

### *Commonwealth involvement in NT regulation*

As noted above, the Memorandum of Understanding (MOU) between the Commonwealth and the Northern Territory in relation to working arrangements for the regulation of uranium mining in the Northern Territory defines the roles and responsibilities of each jurisdiction in relation to uranium mining, with the Territory retaining responsibility for day-to-day regulation of mining, albeit in close consultation with the SSD in relation to issues at the Ranger mine.

### **Access to the resource**

Due to the Ranger mine's close proximity to an area of international environmental significance and the ownership of the land by traditional owners, the mine is subject to a more onerous set of regulatory requirements than would otherwise be required. These arrangements reflect the recommendations of the Fox Inquiry (The Ranger Uranium Environment (Fox) Inquiry (1977)). However, it is likely that public opinion would ensure any new uranium mine would also be required to meet a high level of environmental performance, if not to the same level and complexity as Ranger. A recent, non-uranium example is the appointment of an independent monitor for the expansion of the McArthur River Mine.

In addition to other requirements and due to the fact that the Ranger mine was authorised under Section 41 of the Commonwealth *Atomic Energy Act 1953* — before the Northern Territory gained self-government — it is subject to a number of Environmental Requirements defined by the Commonwealth and incorporated into the Ranger General Authorisation by the Northern Territory Government. In the case that the Ranger mine fails to comply with the Section 41 Authority or the Environmental Requirements, the NT Minister may take action against the mine operator.<sup>29</sup> The Commonwealth Minister also has powers to take action, although in practice this would be left to the NT Minister in the first instance in accordance with the MOU. The Jabiluka deposit, which was authorised after Northern Territory self-government, is covered by a mineral lease authorised under the Mining Act (NT). Any future uranium leases will be granted under the *Mining Act* and under the *Mining Management Act*.

<sup>29</sup> Senate report, Environment, Communications, Information Technology and the Arts: *Regulating the Ranger, Jabiluka, Beverley and Honeymoon uranium mines*, October 2003, pp 9-10.

### *Mining Act*

The Northern Territory's *Mining Act* governs the exploration for, and mining of, mineral resources in the Northern Territory. It regulates title approvals including those for the exploration and extraction of uranium. Under the Act, an exploration licence must be granted prior to commencing exploration activities. Obtaining an exploration licence requires approval from the Minister following the submission of an application outlining:

- the area to be explored
- a list of the land owners and occupiers whose land will be, or is reasonably likely to be, affected by the activities
- details of the programme of work to be carried out
- estimated expenditure on exploration during first year of the licence (if granted)
- a list of any native title claimants, registered native title bodies, or names of the representative Aboriginal or Torres Strait Islander bodies in relation to any of the land affected by the licence.

Applications for Mineral Leases and Mineral Claims require similar submissions.

Under section 137 of the *Mining Act*, an applicant requires the agreement of the Northern Territory Minister for Mines and Energy before negotiating with the relevant Land Council for the Council's consent to the granting of an exploration licence on Aboriginal freehold land. This applies to all of the land granted under the Commonwealth's *Aboriginal Land Rights (Northern Territory) Act 1976* (ALRA), which is approximately half of the Northern Territory.<sup>30</sup> The conditions for land access are set out in an agreement approved by the Commonwealth Government's Indigenous Affairs Minister under ALRA, which sets the terms and conditions for operations on Aboriginal land in the Northern Territory, including Section IV, which pertains specifically to mining. The Ranger mine operator currently has an agreement with the Northern Land Council and is subject to the conditions of that agreement, including the specific role given to the Northern Land Council.

Because the Ranger mine was developed prior to the Northern Territory gaining self-government — it was therefore authorised under the Commonwealth's *Atomic Energy Act 1953*. The only mines currently authorised under the Northern Territory Mining Act are Jabiluka and Nabarlek. Jabiluka has yet to be developed and cannot proceed without the approval of the traditional owners and Nabarlek has been mined and is being rehabilitated. If Jabiluka receives the go-ahead from traditional owners, a further approvals process may be required. Any future mines in the Northern Territory will fall under the Mining Act.

Section 175 of the Act requires that the Northern Territory Minister consult with the Commonwealth Minister for Resources and act in accordance with any advice provided by the Commonwealth Minister for any granting of mineral leases relating to uranium, in effect giving veto power over uranium mining activity in the Northern Territory to the Commonwealth.

### *Mining Management Act*

A mine operator in the Northern Territory can only obtain an authorisation under the *Mining Management Act* subject to the condition that the operator complies with a current Mining Management Plan (MMP), which is submitted with the application for authorisation.

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<sup>30</sup> [www.uic.com.au/mineregulation.htm](http://www.uic.com.au/mineregulation.htm)

DRDPFIR is responsible for administering the Act, including the requirements for an MMP. An MMP must include:

- the identification and description of the mining activities
- particulars of the implementation of the management system to address environmental issues
- a plan and costing of closure activities
- particulars of the organisational structure
- plans of current and proposed mine workings and infrastructure and other information or documents required by the Minister<sup>31</sup>
- MMPs are approved and reviewed annually. A bond covering 100% of the rehabilitation liability for the site must be lodged with the NT Government. This is also updated annually, usually as part of the MMP approval process.

A risk management plan covering health and safety issues must be submitted to NT WorkSafe, in the Department of Justice (DoJ). Risk management plans cover a five-year period, but must be updated and resubmitted if there is a significant change to operations.

Section 34 of the Act requires that the Northern Territory Minister consult with the Commonwealth Minister on "matters agreed in writing" and act in accordance with any advice provided by the Commonwealth Minister for any authorisation relating to uranium, in effect giving veto power over uranium mining activity in the Northern Territory to the Commonwealth.

Other areas of the Act outline the environmental obligations for mining in the Northern Territory, including for the mining of uranium. The Act mandates a regime of audits, inspections, investigations, monitoring and reporting to ensure compliance with agreed standards and criteria. Under the Act it is required that mine site operators report any serious accident or critical incident that may be subject to investigation.

Health and safety issues are covered by the *Workplace Health and Safety Act 2007*, which covers all workplaces in the Northern Territory, including mines. The Act provides for the adoption of codes of practice to ensure appropriate health and safety requirements are met in industry sectors.

DRDPFIR provides management guidelines for uranium exploration, and provides guidance on the appropriate approaches to drill hole and core sample management.

The Act also establishes the Mining Board, made up of industry representatives, to advise the Minister on matters relating to the areas covered by the Act. This applies to all mines in the Northern Territory, not just uranium.

### *General Authorisation*

The General Authorisations for the Ranger and Jabiluka mines are issued under the *Mining Management Act* and are essentially the same as those operating under the previous *Uranium Mining (Environmental Control) Act 1979*. The Act provides for alterations to the authorisation to be issued by the Northern Territory Government. The authorisation requires that ERA seek approval for certain activities from DRDPFIR.

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<sup>31</sup> Senate report, Environment, Communications, Information Technology and the Arts: *Regulating the Ranger, Jabiluka, Beverley and Honeymoon uranium mines*, October 2003, p 9.

In addition to the other legislative requirements for uranium waste management, the environmental requirements set out in the Ranger General Authorisation set requirements for the management of tailings from that mine.

## Incident reporting in the NT

Responsibilities for the regulation of uranium mining in the Northern Territory are shared between the Australian and Northern Territory Governments through a series of intergovernmental Working Arrangements. The close proximity of the Ranger mine to Kakadu National Park, a world heritage listed area, makes this mine one of the most stringently regulated and monitored uranium mines in the world.

Mining operations are regulated by the *Mining Management Act*, which mandates a regime of audits, inspections, investigations, monitoring and reporting to ensure compliance with agreed standards and criteria for environmental management. Mining officers are appointed to enforce the Act.

DRDPIFR acts as the shop front for the planning documentation, while NT Worksafe regulates and enforces safety management. The *Mining Management Act* was recently amended to reflect that safety regulation is to be undertaken by NT Worksafe. New regulations under the NT *Work Health Act* are expected to be incorporated into the Act shortly.

ERA is required to report environmental incidents at its Ranger and Jabiluka operations to meet statutory requirements for incident reporting under the Environmental Requirements of the respective sites and under the regulatory regime prescribed by the Northern Territory *Mining Management Act*. This reporting process is consistent with all mining sites in the NT which is the requirement to advise “as soon as practicable” of a critical incident or serious accident.

Immediately upon receipt of notification of environmental incidents, the DRDPIFR and SSD assess the circumstances of the situation and a senior officer makes a decision on the appropriate level of response. Dependent on the assessment, this response will range from implementation of an immediate independent investigation such as occurred in March 2004 following a potable water contamination incident, through seeking further information from the mine operator before making such a decision. In those cases where immediate action is not considered to be required, the situation is again reviewed on receipt of a formal incident investigation report from the operator. Where incidents are considered to have any potential environmental significance or represent repetitions of a class of occurrences, an onsite review is scheduled as a part of the routine inspection protocol.

Since 2000, ERA has undertaken to provide stakeholders with a comprehensive list of environmental incidents reported at its Ranger and Jabiluka operations on a regular basis. The regular monthly environmental incident report is additional to reports made to meet the statutory requirements for incident reporting. This regime of reporting all recorded environmental incidents is undertaken voluntarily by ERA in response to concerns expressed by stakeholders about the establishment of suitable thresholds of incident severity for reporting.<sup>32</sup>

<sup>32</sup>

Senate Environment, Communications, Information Technology & the Arts Legislation Committee (2006), *Budget estimates hearing 2006–07*, Available at [http://www.aph.gov.au/senate/Committee/ecita\\_ctte/estimates/bud\\_0607/eh/ssd.rtf](http://www.aph.gov.au/senate/Committee/ecita_ctte/estimates/bud_0607/eh/ssd.rtf)

## Radiation protection in the NT

### *Radioactive Ores and Concentrates (Packaging and Transport) Act*

Under the *Radioactive Ores and Concentrates (Packaging and Transport) Act*, a licence must be obtained from the Chief Inspector, appointed by the Northern Territory Minister for Justice, to transport radioactive material, such as uranium. The Act also specifies that “a person shall not transport radioactive material of which he is the owner, or cause or allow the material to be transported, unless he has appointed an agent”. The owner must notify the Chief Inspector of the appointment. Only the agent, or a deputy agent, may transport the radioactive material.

The Chief Inspector may prescribe conditions in the licence as deemed necessary for the safe packaging, storage or transport of radioactive material. This can include the route or mode of transport, the person by whom the material is to be transported and the times within which the material is to be transported.

The Act requires that the licensee shall keep any prescribed records. In relation to this, the Northern Territory has established a set of regulations, *Radioactive Ores and Concentrates (Packaging and Transport) Regulations*. The regulations require that a person licensed to transport radioactive material shall keep records of:

- each licence granted under the Act
- the name and date of appointment of each agent and deputy agent they appoint under the Act
- in respect to each load of radioactive material transported
  - i) the dates on which the transportation of the load began and ceased
  - ii) the nature and quantity of the radioactive material in the load
  - iii) the origin and the destination of the load
  - iv) the route taken between the place of departure and the destination of the load
  - v) the name of the person who transported the load and the name of the person in charge of the vehicle transporting the load
  - vi) the registration number of the vehicle transporting the load.

### Stakeholder consultation

As in South Australia, a system of consultative committees exists in the Northern Territory. The primary meetings — which were discussed above in relation to Commonwealth regulation — are the ARRAC, ARRTC and the MTC derived from the Commonwealth/Northern Territory MOU.

## 2.5 Summary of the current system

Table 2.1 provides a summary of the major legislation that applies at each stage of the uranium mining supply chain at both Commonwealth and State/Territory level. The diagram shows the multiplicity of regulation that applies at each level, most notably in the area of environmental approvals.

**Table 2.1**  
SUMMARY OF THE CURRENT SYSTEM

| ACTIVITY  | RELEVANT REGULATION   |
|---|---|
| <b>Access to land</b>                                 | CW: Native Title Act 1993; Aboriginal Land Rights (NT) Act 1976;<br>SA: Mining Act 1971 (Part 9B covers Native Title).<br>NT: Mining Act 1980   |
| <b>Exploration licence</b>                            | CW: Aboriginal Land Rights (NT) Act 1976 (on ALRA land)<br>SA: Mining Act 1971<br>NT: Mining Management Act ; Mining Act  |
| <b>Mining lease</b>                                   | SA: Mining Act 1971; Development Act 1993; Roxby Downs Act 1982<br>NT: Mining <i>Management</i> Act   |
| <b>Environmental approval</b>                         | CW: <i>EPIP Act</i> 1974 (repealed); EPBC Act 1999<br>SA: Environment Protection Act 1993; Development Act 1993; Roxby Downs Act 1982; Mining Act 1971 requires a MARP which is the environmental approval<br>NT: Mining Management Act 2001  |
| <b>Planning &amp; development approval</b>            | CW: EPBC Act 1999<br>SA: Roxby Downs Act 1982; Development Act 1993<br>NT: Mining Management Act  |
| <b>Licence to mine or mill radioactive ores</b>       | CW: Mining Code 2005 ; Atomic Energy Act 1953 (Ranger only)<br>SA: Rad. Protection & Control Act 1982<br>NT: Mining Management Act  |
| <b>Monitoring and audit</b>                           | CW: EPBC Act 1999<br>SA: Mines & Works Inspection Act 1920; Mining Act 1971; Radiation Protection & Control Act 1982; Water, Native Veg, Flora/Fauna Acts/Regs<br>NT: Mining Management Act   |
| <b>OH&amp;S</b>                                       | SA: Occ. Health Safety & Welfare Act 1995; Dangerous Substances Act 1979; Radiation Protection & Control Act 1982<br>NT: Workplace Health & Safety Act 2007   |
| <b>Permit to transport and store nuclear material</b> | CW: Code for Safe Transport of Radioactive Material 2001 ; Nuclear Non-Proliferation (Safeguards) Act 1987;<br>SA: Transport Code; Radiation Protection and Control (Transport of Radioactive Substances) Regulations 2003<br>NT: Radioactive Ores and Concentrates (Packaging and Transport) Act |
| <b>License to export</b>                              | CW: Customs (Prohibited Exports) Regulations 1958 under the Customs Act 1901<br>CW: Nuclear Non-Proliferation (Safeguards) Act 1987;  |
| <b>Mine rehabilitation and closure</b>                | CW: EPBC Act 1999; Ranger Government Agreement<br>SA: Mining Act 1971<br>NT: Mining Management Act  |

Source: Adapted from UMPNER 2006.

# 3 Major issues with the current system

*This chapter presents the views of stakeholders on how the current regulatory system for uranium mining is operating in practice. Major issues are presented across five major areas: environmental regulation, access to land, stakeholder engagement, incident reporting and transport.*

## 3.1 Introduction

A range of stakeholders in government, industry and the broader community were consulted with a view to determining which areas are causing significant issues for those participating in the regulatory system for uranium mining (see Appendix A for list of stakeholders). This chapter outlines the views expressed during this consultative phase. While some may take issue at certain views expressed, the accuracy of the opinions, in terms of reflecting the facts, is not necessarily the only issue for investors in the industry. This is because perceptions can have as important an influence over investor behaviour as the actuality of the situation.

Our conclusion following extensive discussions with stakeholders, particularly business representatives, is that there are bottlenecks and areas of inefficiency, duplication and inconsistency at a number of points, both along the uranium mine approvals process and once a mine is fully operational. The following areas represent those in which concerns are held currently:

- the major problems are in the area of environmental regulation, specifically:
  - Commonwealth environmental assessment, approvals and on-going monitoring processes, particularly under the EPBC Act, but also in relation to environmental conditions imposed under the now defunct EPIP Act; and
  - other environmental assessment and approvals, particularly the interaction between PIRSA and the EPA in South Australia, but also the role of the SSD in the Northern Territory;
- less critical, but also important areas of concern are:
  - access to land controlled by traditional owners in the Northern Territory and the Defence Department;
  - the framework in place for incident reporting;
  - stakeholder engagement, including protocols for stakeholder consultation, and the number and format of required meetings and reports; and
  - transport regulations.

These issues are discussed in turn below.



## 3.2 Commonwealth environmental regulation

### Principles underlying EPBC Act

The involvement of the Commonwealth in providing environmental approvals for new uranium mining developments under the EPBC Act is a key driver of much of the duplication inherent in the current regulatory framework. This is not surprising — as outlined in chapter 2, under the EPBC Act and its COAG obligations more broadly, the Commonwealth is legislatively required to play a key role in relation to environmental approval where a uranium mining development is deemed to be environmentally ‘significant’. The issue is whether — in the case of all uranium mining activities — a high level of involvement by Commonwealth agencies is justified by the environmental risks involved, particularly given the high level of environmental regulation that applies to all uranium mines at State/Territory level. The involvement of both the State government and the Commonwealth in environmental regulation of uranium mines inevitably leads to some overlaps and duplication. Yet such duplication does not necessarily have to occur in a federation

Under the guidelines, any ‘nuclear action’, including any initiation or expansion of uranium mining within Australia, no matter the scale, is likely to be classified as a referred action under the EPBC Act.<sup>33</sup> While the uranium mine must be referred as a nuclear action, however, a full assessment under the EPBC Act will only be required if the tests relating to matters of national environmental significance indicate that such an assessment is required.

In practice, and although there have been exceptions for minor uranium developments, any significant development of a uranium mine would be likely to trigger the second phase of the EPBC Act process, that is, environmental assessment and approval.<sup>34</sup> According to a number of stakeholders consulted, under the interpretation of the Act ‘people’ constitute environment, and because uranium inevitably raises issues of radiation protection risks for ‘people’, most uranium mining activities are likely to be classified as environmentally significant under the Act.

There is little debate among stakeholders that some uranium mines will appropriately trigger a full assessment and approval process under the EPBC Act. These would typically be large scale mines with a range of potentially significant environmental impacts, or smaller mines located in particularly environmentally sensitive areas. For example, the Olympic Dam expansion project — a major expansion of the existing mining operations — would be likely to trigger the EPBC Act under a number of controlling provisions:

- protecting the environment from nuclear actions
- wetlands of international importance
- listed and threatened species and communities
- listed migratory species
- protection of the environment from actions involving Commonwealth land.

<sup>33</sup> This view was expressed by some members of the UIF regulation working group (November 20th 2007) and by many of the stakeholders during the consultation period.

<sup>34</sup> There are a limited number of exceptions to this, typically in cases of very small scale, non-commercial uranium developments. For example, the Oban field leach trial in South Australia’s northeast was assessed as not falling under the provisions of the *EPBC Act*.

Hence large mining developments such as Olympic Dam would almost inevitably trigger action under the EPBC Act even in the absence of nuclear actions clauses.

The contention arises in relation to much smaller developments in non-environmentally sensitive areas, or in relation to extensions of current developments. Key examples raised by stakeholders in this context were:

- the 'Nolans Bore' Rare Earths project — which may be required to undergo environmental assessment and approval under the EPBC Act — was raised a number of times as an example of the sometimes anomalous outcomes generated under the EPBC Act. The project is a primarily a phosphate mineralisation, which also contains uranium (and thorium) which would be produced as a by-product of the rare earths processing. The project is located 135 kilometres north of Alice Springs in the Northern Territory. The view expressed by stakeholders was that this was a project of very little environmental significance other than that derived from the interpretation of uranium under the EPBC Act. While uranium was the fourth resource coming from the mine in terms of importance, the project may trigger the EPBC Act solely because of the uranium (and thorium) aspects of its development. This has not been tested yet, but will be scrutinised in regards to the speed, cost and complexity of its process through the various environmental regulatory processes
- the requirement for an EPBC Act assessment of Heathgate's extension to the Beverley ISL mine. The requirement for an EPBC Act environmental assessment in this instance existed despite the fact that the development, according to the company, essentially represented continuation of business-as-usual with no change to the process or infrastructure (other than extending pipelines to new wellfields), and that Heathgate had a record of successfully managing environmental risks at the existing mine for six years.<sup>35</sup> Nevertheless, ISL mining remains contentious and as such, it may be appropriate for the Commonwealth to remain involved. While there are some environmental issues related to the development, given that the mine did not trigger the EPBC Act under any of the 'non-nuclear' clauses, it is not clear that these could not have been adequately dealt with under State legislation.

Some stakeholders are concerned that where two mines have essentially very similar implications for the natural environment, but one deposit is uranium and the other is not, the uranium mine will be required to undergo a full assessment and approvals process, while the non-uranium mine will not, solely on the basis of the 'nuclear' nature of the uranium mine. On the other hand, given the involvement of radiation and given the strong concern in the community over the environmental impacts of a uranium mine, it is not unreasonable to assign a more stringent regulatory requirement to uranium mines. This should not be excessive, however, but should be related to the additional risks.

## EPBC Act in practice

As well as the issue of whether or not Commonwealth involvement via the EBPC Act is always justified in principle, a second issue relates to how this involvement is being implemented in practice. Ideally, the Commonwealth and States/Territories would work as closely as possible to align requirements under their parallel assessment processes to minimise the administrative burden on proponents. Moreover, where the EPBC Act process has been triggered solely because of issues related to uranium, the focus of the Commonwealth's efforts in assessing and granting approval to the mine should be limited to

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<sup>35</sup> Discussions with Heathgate Resources.

those issues, with remaining environmental issues dealt with solely by the relevant State/Territory authorities.

In the interests of removing unnecessary duplication, the Commonwealth has now developed a formal bilateral agreement with accreditation of the South Australian regulatory process to streamline regulatory barriers.

However, despite the existence of formal agreements to align processes as far as possible, generally, stakeholders typically described the Commonwealth's role in practice as both broad and deep, leading to a very 'hands on' involvement. Particular issues of concern were that:

- while there is a parallel process for EPBC Act reporting, both Commonwealth and State agencies are entitled to provide comments throughout the drafting process and there can be inconsistencies in the comments received. Similarly, significant delays have been reported around getting agreement from the Commonwealth and the State on what the reports should contain in the first instance. Some of the issues Heathgate Resources has experienced in obtaining approval for the Beverley extension are outlined in Box 3.2 below
- while a number of developments have been permitted to fulfil requirements under the EPBC Act assessment process using a PER or other relatively less onerous requirements than a full EIS, the burden imposed by these provisions in terms of time spent, costs and resources remains high
- some stakeholders felt strongly that the Commonwealth's role should be limited to the 'national significance' components of the assessment issue. Stakeholders also commented that the Commonwealth was not viewed as having the expertise, nor the legislated 'on-the-ground' role, to warrant the level of detail it currently requires from proponents. What is defined as 'national significance' by stakeholders as compared with the Commonwealth is apparently somewhat different and worthy of further consideration and review. Clarification of this issue may assist in resolving the roles for various agencies under the EPBC Act and assist firms in understanding the process
- similarly, some stakeholders felt strongly that there is an urgent need for a formal process to coordinate licence conditions from the Commonwealth and the State. While arrangements are in place to align these, in practice stakeholders have concerns that the Commonwealth can put conditions on that the State does not agree with, or even understand.

A major issue in this regard for South Australia is that the regulatory burden imposed by the role of the Commonwealth under the EPBC Act is exacerbated because, while a bilateral agreement between the Commonwealth and the State allows for a parallel EIS process, South Australia is currently not accredited to give approval on behalf of the Commonwealth for projects that have triggered the EPBC Act because of nuclear issues. This was seen as an obvious area where a 'quick win' could be achieved through regulatory reform and while there are processes currently in place to work towards it, such reform has not yet occurred.

**Box 3.2**

## ISSUES WITH THE APPROVALS PROCESS FOR THE BEVERLEY MINE EXTENSION

According to Heathgate Resources, an application by it to develop an extension to the Beverley mine triggered both the Commonwealth's EPBC Act, and — as an automatic consequence of this — the South Australian Government's major project assessment process. In line with joint processes between the Commonwealth and South Australia in relation to environmental assessments, it was agreed that the State government would run the process, with Commonwealth involvement and approval as required<sup>36</sup>. However both jurisdictions agreed that — given the scale and nature of the development — a full Environmental Impact Statement (EIS) would not be required. Instead, Heathgate was required to complete a Public Environment Report (PER) in relation to the project. The South Australian Government further agreed that the PER could be incorporated as part of the MARP for the project.

Some of the major issues confronted by Heathgate during the process include:

- It took many months, and several iterations, for the Commonwealth and State to agree, through joint assessment processes, on the requirements for the PER/MARP. According to PIRSA, it took the Commonwealth seven months to determine the level of assessment (the State authorities were from the beginning agreeable to it being a PER level assessment) and for the Commonwealth to agree on its EPBC Act guidelines – in the end it endorsed the SA *Mining Act* guidelines without change.
- According to Heathgate, considerable resources were required to incorporate multiple comments from both Commonwealth and State representatives. This has led to substantial delays on the project to date. According to Heathgate, at the time the company was still unsure as to what was required to make the draft PER/MARP acceptable.

Source: Discussions with Heathgate Resources

In the Northern Territory, our understanding is that DRDPFR is the day to day regulator, with SSD undertaking a monitoring role. This is because the single existing mine in the Territory, Ranger, is located in the Alligator Rivers area and is subject to particular legislation. However, stakeholders in the Northern Territory suggested that as more mining developments are proposed outside of the Alligator Rivers Region, the supporting role played currently by the SSD will become less relevant. Since the SSD is a technical specialist with very particular skills in the environmental impacts of mining in tropical wetlands areas such as Kakadu, the practicality of extending the agency's advisory role to proposed mining developments in non-wetlands areas is unclear.

It should be noted that a number of stakeholders — particularly those from within government agencies — suggested that the strict regulatory requirements imposed by the EPBC Act are appropriate given the high level of community concern regarding safety in the uranium mining industry. Clearly, community concerns are a major driver of regulation in relation to uranium mining, and any system that offered an alternative to hands-on involvement by the Commonwealth via the EPBC Act would need to demonstrate an effective management framework to provide assurance to the Australian public about the safety of the industry.

On the other hand, the inclusion of uranium mining as a nuclear action under the EPBC Act does give rise to duplication and overlaps. In June 2008, for example, Kent Grey from Minter Ellison, provided a commentary on the current problems:

“about seven or eight government or quasi government bodies must currently be consulted in order for a uranium mine to be fully permitted.” He said as more companies moved from exploration to mine development, there would be pressure to streamline the process. "All up, the regulatory system in Australia is made up of state and

<sup>36</sup> The Commonwealth and South Australian Governments have signed a formal Bilateral Agreement such that the South Australian assessment (but not approval) processes are accredited by the Commonwealth Government.

Commonwealth laws, industry codes of conduct and even international treaties and conventions," he said. "It is, at times, a mind boggling system of regulation. It represents a mountain of paperwork and is time consuming and expensive to comply with. "We are a long way off a 'one-stop-shop' system like Canada's, but we can learn a lot of useful lessons. That is a country that, legally speaking, is similar to Australia, with separate state and federal laws." Mr Grey said while the state and federal responsibilities were mostly clear, there was still a lot of overlap, which made the approvals process confusing for new entrants."

"Simplify the regulations," *Adelaide Advertiser*, 18 June 2008.

## EPIP Act

As outlined in chapter 2, any uranium mines approved prior to the introduction of the EPBC Act in 1999 were assessed at the Commonwealth level under the EPIP Act. Aside from the inherent inefficiencies involved in running two parallel systems of regulation, the major problem with the EPIP Act raised by stakeholders concerns the role of the Commonwealth Resources Minister in placing environmental conditions on export permits for uranium. While RET may consult with DEWHA on the nature and scope of the environmental licence conditions imposed, ultimate responsibility for these conditions rests with RET. The rationale for this is that the EPIP Act authorised environmental conditions to be imposed on projects under Commonwealth approvals, such as export controls. In practice though, enforcement of environmental conditions is undertaken by RET in close consultation with DEWHA and the day to day regulator in SA/NT, ie PIRSA and DRDPIFR.

This arrangement is anomalous for two reasons. First, while export controls are clearly warranted in the context of safeguards, for an industry operating in a developed country, where governments apply best practice environmental regulation to its operations, there would appear to be no case for applying an environmental condition to exports. If this were an appropriate policy action, why would it not apply to all resource exports and not just uranium? It appears that the environmental conditions were applied under the export power because, before the EPBC Act, this was the only obvious way under the Constitution that the Commonwealth could impose and enforce environmental requirements on a uranium mine.

Secondly, the choice of regulating agency in respect of the environmental conditions may be inappropriate because RET may not have particular skills or expertise in environmental issues. Giving an agency absolute authority over an area in which they are not typically required to be proficient represents a considerable flaw in the previous system. RET augments its own abilities in managing environmental licence conditions by seeking external expert advice from other Government agencies. Some stakeholders commented that, in their view, the quality of some advice on environmental issues in the past had, at times, been questionable.

## 3.3 Other environmental regulation

### South Australia

In South Australia, PIRSA has endeavoured to act as a 'single entry point' for uranium mining proponents. The MARP — which aims to act as an all-encompassing document containing the complete set of information required for mine assessment, and environmental management — is intended to facilitate approvals for mining project proponents in South Australia, and clarify what is required of them and by whom. In practice however, the high

levels of hands-on involvement by other agencies under separate environmental legislation, particularly the RPD EPA and the Commonwealth, has meant that there is some confusion among many stakeholders about who is “running the show” and therefore how to successfully navigate the process.

Despite efforts by both agencies to coordinate the process, there was a misalignment of some requirements from PIRSA and the RPD EPA around mining management plans. Generally speaking, stakeholders agreed that it is relatively easy to align PIRSA’s statutory responsibilities with those of some other agencies. For example Planning SA, DWBLC, DEH and other parts of the EPA under the South Australian Environment Protection Act 1993, all have legislative responsibility for environmental matters under various Acts. Due to the RPD EPA having very specific requirements and different nationally agreed processes, this may be difficult to merge into a single generic document such as the MARP.

In addition, the State Government has specifically placed the RPD within the EPA to demonstrate independent regulation of the radiation issues in uranium mining, particularly those associated with the management of radioactive waste and spills. There is a perception that this role has the potential to conflict with PIRSA’s role as both promoter and regulator of uranium mining projects, and this perception needs to be carefully managed by both agencies.

While the MARP is a summarising/coordinating process that specifies a series of broad environmental outcomes, the RWMP is part of a nationally agreed process designed to achieve specific outcomes in relation to radioactive waste management and the related impacts on the environment and members of the public.

There has been some significant work by PIRSA and the RPD EPA to resolve the differences between the processes. Some difficulties remain, however, in incorporating what some stakeholders consider, a more prescriptive intervention, with an outcomes based approach.

As outlined in Chapter 2, in South Australia currently there are essentially three major ‘plans’ associated with the regulation of uranium mining activities. As well as the MARP there are:

- *EMMP*: an EMMP is a plan for protecting, managing and rehabilitating the environment affected by uranium mining. This plan encompasses waste management, flora, fauna, groundwater spills and air emissions.
- *the EPA’s RWMP*: specifies radiation management and monitoring requirements (including those relating to environmental impacts) and are required under ARPANSA’s Mining Code. The provisions of this Code have been adopted into the current legislative framework in South Australia.

Currently, in order to facilitate the assessment and approvals process required under the Mining Code process, there is a MOU between PIRSA and the EPA in relation to the RWMP. In effect this provides the opportunity for integration of planning requirements under each of these plans. According to stakeholders, including the agencies themselves, a lack of effective integration between, or alignment of, the requirements of the MARP and the RMP/RWMP results in some regulatory inefficiency in South Australia. Particular issues identified during the stakeholder consultations were:

- proponents are currently required to satisfy conditions in relation to radiation protection issues devised by both PIRSA – via the MARP – and the EPA – via the RMP/RWMP. While the agencies do undertake to consult on these conditions, and to coordinate them

where possible, there were differences in the conditions set out in the two plans in a number of cases.

- the EPA is legislatively required to ensure that radiation protection issues associated with an operational or proposed uranium mine in South Australia are dealt with in a way that complies with the Mining Code. Radiation protection issues in the State cannot therefore be adequately dealt with in a way that does not satisfy the requirements of the RPD of the South Australian EPA
- the EPA is not satisfied that radiation protection issues can be dealt with adequately in the MARP in its current form. There are also issues around document review with some stakeholders having the view that the MARP process is a ‘once off’ approval, while the EPA’s RMP/RWMPs typically provide ongoing staged approvals in a number of areas
- in the case of Olympic Dam, the RPD considers the existing EMMP to be a useful management tool, but not sufficient, in satisfying the radioactive waste management requirements of a RWMP as envisioned in the Commonwealth Mining Code. PIRSA on the other hand believes that the EMMP is not an effective mechanism for demonstrating compliance with particular requirements.
- PIRSA is similarly required — under the *Mining Act 1971* — to deal with all of the relevant risks associated with a particular mining activity, including mine closure.  
Northern Territory

In the Northern Territory, DRDPIFR endeavours to act as a single point of contact for mining developers. Because of the relatively seamless relationship between DRDPIFR and SSD, stakeholders felt there was, to some degree, a ‘one stop shop’ for mining proponents in the Northern Territory. However, as with many aspects of mining regulation in the Northern Territory, a shortage of skilled resources is putting pressure on the efficiency of regulatory processes as mining activity expands.

One government stakeholder acknowledged that, due to approvals processes, the time between discovering uranium and commencing mining operations in the Northern Territory would now be around 10 years. However, a number of uranium resources have been known for decades, but not developed because of cost or other constraints, rather than the regulatory process. The most recent mining projects (analogous to an extent because their resource existence was known before modern development) are the Bootu Creek manganese and Frances Creek iron ore projects. Each of these took approximately 2-3 years from a decision to start development to mining. Nolans Bore has commenced a 2-3 year approval cycle after 2-3 years of exploration and feasibility developments.

### *Supervising Scientist Division (SSD)*

Without exception, stakeholders in the Northern Territory acknowledged that the sensitive environment surrounding the Ranger mine necessitates a unique approach to regulation, particularly in terms of environmental management, but also in relation to issues of Indigenous culture and heritage. In this context, the collaborative regulatory role played by the SSD and the Northern Territory Government in the Alligator Rivers Region is viewed by some stakeholders as a potential best practice model for replication in other contexts. A number of other stakeholders, however, regard this regulatory approach as being too heavy-handed relative to the risks it is intended to manage.

Key views in support of the SSD model were:

- the role of the SSD as an independent auditor of mining activities at Ranger is essential to ensure that environmental risks are managed appropriately. The unique environmental challenges associated with mining in close proximity to a national park were recognised by all stakeholders as a credible reason for direct Commonwealth involvement in regulation
- the SSD was praised by many stakeholders for its active role in managing issues associated with the Indigenous communities living in and around Kakadu. The SSD was viewed as having a very low key, informal approach to liaising with the Indigenous community, which was proving very successful. It was seen as a “trusted adviser” in this context
- as well as this, the SSD is viewed as having an important role in boosting broader community confidence and managing perceived risks. The SSD is viewed as a genuinely independent player in the process
- the SSD also performs a very useful role from an industry perspective because the SSD gives the community confidence that the environmental management being undertaken at Ranger is comprehensive and credible. The SSD also provides considerable support to industry in managing issues associated with the Indigenous community at Ranger
- because the Northern Territory Government lacks resources in some key areas, the SSD plays a vital role in boosting local expertise and efforts, particularly around the more technical aspects of the regulatory framework.

Stakeholders also raised a number of areas where the possibility of improved arrangements should be explored:

- stakeholders described the current level of involvement of the SSD in regulating uranium mining in the Territory as both very broad and very deep. In essence, some were of the view that this approach was excessive, and that currently the SSD performs too much ‘hands on’ monitoring, where a more strictly ‘audit only’ approach would be more efficient
- following from this, a number of stakeholders pointed out that the SSD model was developed to deal with all uranium mining activity in the Alligator Rivers Region. At the time of the SSD’s inception, it was envisaged that this would include at least the Jabiluka mine in addition to Ranger in the medium term. Since this has not eventuated, the SSD infrastructure currently in place is in excess of what would be efficiently required to regulate a single mining operation.

It is apparent from these stakeholder discussions that there is some misunderstanding of the roles of DRDPFR as regulator and SSD as a regulator and research agency:

- some stakeholders were frustrated by the fact that the vast majority of environmental issues associated with Ranger are required to have involvement from both the Commonwealth (SSD) and the Northern Territory Government (DRDPFR). This duplication reflects the fact that, on the one hand, DRDPFR has legislative responsibility for regulating in this area with support from the SSD. On the other hand however, the SSD is also charged with ensuring there are no impacts on the environment from uranium mining, which can lead to some duplication. It should be noted though that, in general, stakeholders felt that DRDPFR and the SSD worked together cooperatively and efficiently.



## 3.4 Access to land

### State bans on uranium mining and exploration

The most substantial regulatory impediment to the development of the industry in Australia is the continuing bans on uranium mining in some Australian States. Some of those jurisdictions also ban exploration for uranium.

In New South Wales and Victoria uranium mining and exploration are prohibited by legislation passed in the 1980s. The Queensland Government does not prohibit exploration for uranium and nor is uranium mining banned under legislation. That government has, however, made it clear that it will not issue mining licences for uranium. Tasmania, where no uranium discoveries have been made to date, does not ban uranium exploration or mining, although the Private Member's *Uranium Mining and Nuclear Facilities Prohibition Bill 2006* has yet to be subject to a vote.

For most of the last two decades, the policy of the Australian Labor Party was to oppose the development of any new uranium mines beyond the existing three operations. This policy was overturned at the ALP's federal conference in 2007, when restrictions on uranium mining were dropped. State premiers supported this resolution. Since the conference, however, the Queensland Labor Government has not changed its policy, while Western Australia recently changed its policy with a change in government. Limitations on mining are clearly inhibiting the development of the industry.

Aside from these domestic issues, the policy of banning uranium mining has an impact on the global movement against climate change. According to a report published in 2008 by the Australian Uranium Association (AUA), a major movement back to nuclear power is occurring internationally, with over 350 new reactors being built, planned or under active study. Apart from the issue of energy security, only nuclear power and geothermal currently can provide base load power with near-zero carbon emissions at an economic cost. The new Generation Three and Four reactors are more efficient than previous designs, produce less waste and have sophisticated fail safe systems. Yvo de Boer, Executive Director of the UN's Inter-governmental Panel on Climate Change (IPCC) stated at Bali that "I have never seen a credible scenario for reducing emissions that did not include nuclear energy".<sup>37</sup> Of the G20 group of the world's largest economies, only one (Australia) does not already have nuclear power or is not evaluating its use in the future.<sup>38</sup>

Currently, apart from global warming, there is significant concern internationally with energy security. The situation in Iraq and tensions between the west and Iran have contributed to a high level of concern regarding the security of future oil and gas supplies from the Middle East. The Russian Government's apparent willingness to interrupt gas supplies to the west has contributed an additional concern in Europe about the security of future energy supplies.

In this environment, Australia has a major opportunity to gain global recognition as a stable and reliable supplier of energy generally and of 'greenhouse-friendly' energy such as LNG and uranium. However, bans on uranium mining in three out of six Australian States will do nothing to support Australia's international reputation. Not surprisingly in the current energy market environment, awareness of these bans is becoming more widespread internationally.

<sup>37</sup> Quoted in Angus Grigg, 'Nuclear test for Rudd,' *Australian Financial Review*, 8-9 December 2007, Sydney, page 22

<sup>38</sup> Australian Uranium Association (2008), *Outlook for the Uranium Industry - Evaluating the economic impact of the Australian uranium industry to 2030*, a report by Deloitte Insight Economics, April.

Unless the bans are lifted, Australia may be unable to fulfil its full potential to become an ‘energy superpower’.

### Access to land in the Northern Territory

Stakeholders in the Northern Territory identified some bottlenecks around the process for undertaking negotiations with traditional owners (TOs) for access to land for uranium mining. It should be noted that negotiations with TOs are required for all mining activities in the NT on Aboriginal land under ALRA.

The bottlenecks around access to land have existed for over 2 decades and are now exacerbated by the massive increase in applications for access to potential uranium sites in recent years. Anecdotal evidence suggests that the number of groups applying to negotiate with TOs in relation to land access has increased tenfold in the last five years. There has been a lag in the response of resource levels to this increasing demand, and the Land Councils do not currently have the resources to process all of these applications within a reasonable period of time. This backlog is expected to take some years to clear given the severe shortage of skilled staff in the areas — such as Indigenous language skills — required to expedite these processes.

It should also be emphasised that any fault by no means lies with only one of the parties. There is anecdotal evidence to suggest that many project proponents enter into negotiations with TOs when they are very ill-prepared to do so. The company at least should be able to make a presentation that discusses the pros and cons of uranium mining in some depth, as well as the potential benefits to Traditional Owners in the case of a potential commercial discovery and how their concerns would be addressed.

A number of procedures — including setting a range of requirements that have to be met before formal negotiation procedures can commence — have been put in place to limit the ability of highly speculative investors from using up valuable resources during the approvals process. However, stakeholders indicated that more was needed in this regard, and that there may be a role for the industry itself to play in educating new entrants on the most effective ways of dealing with issues associated with Indigenous land rights in the Northern Territory (and other areas in Australia under native title).

Other drivers of the bottlenecks around access to land are inherent to the nature of negotiations with TOs and in that respect may be very difficult, or impossible, to overcome. There is little consistency in the views of one group compared to another, and it is very difficult to predict the outcome of a negotiation in advance. As spokespeople for the TOs, the Land Councils are duty bound to ensure they have accurately interpreted the wishes of that group before giving approval on their behalf. The disparity in attitudes and communication skills across the community makes this a necessarily drawn out process.

Regulatory changes in the late 1980s attempted to facilitate access to land for proponents by requiring just one approval from TOs for both exploration and eventual mining activities. However in practice, stakeholders suggested that this may have actually reduced the likelihood of a miner gaining approval in the first instance because of the tendency of some TOs to withhold approval rather than provide approval for mining, as well as exploration, up-front. This highlights the difficulties associated with designing regulatory arrangements to govern in areas of cultural diversity and uncertainty, particularly where long time frames are involved.

Amendments to the exploration and mining provisions in Part IV of the *Aboriginal Land Rights (Northern Territory) Act 1976* that came into effect in October 2006 are intended to streamline the mining approvals process and should address some of these concerns

The time limits for Land Councils to respond to applications have been extended, and there are changes to the way Land Councils are resourced based on workload. However, it appears delays are still occurring due to issues such as adequate resourcing of Land Councils, a skills shortage within the Land Councils to meet the demand of project proponents and some project proponents being inexperienced at negotiating with TOs.

Also, the agreement making provisions that were added to the *Native Title Act 1993* in 1998 are designed to encourage companies and Indigenous land owners to enter into agreements that address issues including land access and use.

### 3.5 Incident reporting

Existing regulations relating to incident reporting for uranium mining are regarded by some stakeholders as overly onerous relative to the actual risks involved. This was particularly the case in relation to the South Australian system, where arrangements are based on the recommendations of the Bachmann Review (Box 2.1 above). While some stakeholders in the Northern Territory felt the arrangements in place for reporting incidents at uranium mines was somewhat burdensome, generally, the ability of the DRDPIFR (and partly SSD) to exercise discretion in relation to the management of incidents on a case-by-case basis was viewed as a relatively efficient approach in practice, at least while the number of operating mines in the Northern Territory remains at one.

The major issue in South Australia relates to the fact that current indicators of incidents at uranium mines in that State focus on the number of incidents reported and the volumes of material involved rather than on their impact. This may be contributing to a perception of risk in the uranium mining sector that is out of line with the real risks generated by the incidents being reported. The requirement that spillages on site be reported by volume, regardless of hazard and with no requirement for context to be provided, was raised by stakeholders as being potentially inappropriate.

#### International practice

We have examined regulations and requirements established in the USA and Canada to determine globally accepted, leading industry practice for incident reporting in the uranium industry.

##### *Texas*

In Texas, incident reporting procedures are set out in the Texas Administrative Code. The reporting requirements are prescriptive, with reporting timeframes determined by the severity of the incident and ranging from immediate to within 24 hours and other reportable incidents where no timeframes are clearly defined. In defining severity, the Texas Administrative Code has referred to concentrations, volumes released and distance from extraction site. However, the Code does not appear to focus on potential human health or environmental impact. Further details of the Code's requirements are outlined in Box 3.2 below.

**Box 3.2**

**TEXAS INCIDENT REPORTING REQUIREMENTS**

Reporting procedures are set out in the Texas Administrative Code.

**Report immediately to relevant agency:**

- Any failure of by-product retention system which results in release of by-product material into unrestricted areas.
- Any release of radioactive material outside of the licence boundary which exceeds specified concentrations.
- Any spill which exceeds 75,800 litres and which exceeds specified concentrations.
- Any release of solids which exceeds specified soil contamination limits and extends beyond the licence boundary.

**Report within 24 hours to relevant agency:**

- Any spill which exceeds 7580 litres.
- Any spill that extends beyond the monitor well ring (typical diameter 100 metres).
- Any spill that extends more than 122 metres from an injection or extraction well pipe artery between the wellfield and the processing plant.
- Any spill that extends more than 61 metres from the processing plant.

**Other Reportable Events:**

- Any event involving a source of radiation that has caused, or threatens to cause, an individual to receive a dose above the specified limit.
- Any unplanned contamination event that requires access to the contaminated area by workers or the public to be restricted for more than 24 hours.
- Any event in which equipment that is required to function to prevent releases exceeding regulatory limits, fails or is disabled.
- An unplanned fire or explosion damaging any container or equipment containing radioactive material.

Source: Bachmann 2002, *Report of Independent review of reporting for the SA Uranium mining industry*.

## Canada

The Canadian Nuclear Safety Commission (CNSC) operates and enforces regulations under the *Nuclear Safety and Control Act* (NSCA) which includes requirements for incident reporting. As the Federal regulator, the CNSC executes licensing decisions made by the Commission or its designates, and continually monitors licensees to ensure they comply with safety requirements that protect workers, the public and the environment.

Saskatchewan is the world's largest producer of uranium and the province, in collaboration with the CNSC, has determined reporting requirements for incidents. These include the immediate notification of all reportable incidents, with a full report required within 21 days of the event. However, if an event is considered straightforward and/or is deemed low risk, a preliminary report may be sufficient to meet requirements.

In addition, reporting is required once water effluent concentrations exceed certain concentrations and quantity limits or if any other release of radioactive material enters the undisturbed environment. Water effluent limits are specific to the operation being licensed and comply with Environment Canada Regulations, which prescribe limits applicable to all metal mines.

It is also interesting to note legislative changes elsewhere in Canada. The New Brunswick Government has developed and implemented new guidelines for mining companies exploring for uranium in the province. In addition, British Columbia has revised its mining rules to prohibit companies from staking claims for uranium and Nunatsiavut Governments have imposed a three-year moratorium on uranium mining.

## Points of difference between Australia and overseas practices

There does not appear to be a standard definition for ‘incident’ that is applied across uranium mining federally, in South Australia or the Northern Territory. In addition, the definitions for ‘reportable incident’ are not consistent across the Australian jurisdictions and do not align with the standards set by Canada or the US. The major differences are as follows:

- compulsory reporting of incidents in Texas and Canada is based on concentrations and volumes, whereas reportable incidents are defined by volume alone in South Australia
- in the Northern Territory, the definitions for serious or critical reportable incidents are ambiguous and do not contain clear guidance on the volumes or concentrations that would be considered significant.

While reporting requirements in Canada refer to the International Commission for Radiological Protection (ICRP) recommended standards of protection, the reporting requirements examined as a part of this review make no reference to this standard or the exposure limits determined within it.

Our examination of incident reporting requirements in Australia suggests that a primarily prescriptive approach is taken to incident reporting in the uranium industry, which is regarded by some stakeholders as overly onerous. This approach does not align with the direction of occupational health and safety and environmental legislation in Australia, which requires a risk management approach, assessing and categorising incidents based on significance. For example:

- the level of reporting imposed in Australia is the same for all spills, regardless of the nature or potential hazard. Texas and Canada have relatively less onerous reporting requirements for less serious spills
- the application of a universal reporting requirement for all incidents, regardless of their nature, suggests Australia is taking a more conservative approach to managing incidents and risks. This may reflect community concern as well as the close proximity in some cases of uranium mine deposits to unique and protected national parks and reserves
- in South Australia, current indicators for uranium mines focus on the total number of incidents reported rather than the significance of the incidents and level of risk
- in addition to ambiguous definitions of incident criteria, the Northern Territory has not established a clear link between the criteria for incident reporting and the risk level
- while some stakeholders in the Northern Territory felt the arrangements in place for reporting incidents were somewhat burdensome, they recognised the ability of DRDPIFR to exercise discretion in relation to the management of incidents on a case-by-case basis and viewed this practice as relatively efficient while the number of operating mines in the Northern Territory remains at one. As uranium mining grows in the Northern Territory, it is likely that a more standardised protocol for incident reporting will be required.

While industry best practice is to categorise the significance of incidents and use this to determine what level of reporting and response is required, there is no reporting of the context of incidents in Australia. This issue was raised by ERA and was reinforced by stakeholders during this review as potentially inappropriate. The lack of context can lead to a lack of understanding around the significance of leaks or spills and, as a result, all incidents are treated as major. This has a flow on effect, contributing to a heightened perception of risk

in the uranium mining sector and attracting unnecessary media attention, public scrutiny and community concern in response to relatively minor incidents.

## 3.6 Stakeholder engagement

The current framework for formal stakeholder consultation in relation to uranium mining — in particular the system of consultative committees — is of variable effectiveness across jurisdictions, and is regarded as overly burdensome by some participants when they already have in place their own arrangements for stakeholder consultation and engagement tailored to site specific issues and needs. Other aspects of the administrative and reporting framework may also be imposing unnecessary costs on industry.

### South Australia

In general, stakeholders were in agreement that the current system of Environmental Consultative Committees (ECCs) in South Australia is consuming large amounts of resources with little to show in terms of valuable outcomes from the process. While people were generally in agreement that the principle of holding a consultative process to discuss issues around the environmental management of uranium mines was a good one, the feeling is that the information required from the industry participants is excessive. In particular, the prospect of maintaining current arrangements into the future — as more mines become operational — was thought to be untenable given the level of resources at both the State and Commonwealth level, as well as company resources, that would be required.

A particular issue was around the format of the ECCs: stakeholders felt there were no clear objectives for the meetings, and that they are generally not issues based. While the forum is to provide the Commonwealth with information, the prime outcome of the meetings appears to have been to provide a vast amount of information in great detail to the participants. Essentially, the meetings have become part of the audit process itself, rather than acting as a forum to discuss exceptions or areas of non-compliance.

Stakeholders suggested that where the requirements for meetings are not required in legislation, they could be scaled back, retaining just the requirements for reports to be provided. However some of the quarterlies — such as the one held in relation to Olympic Dam — are a licence condition and so removal of this requirement would require regulatory change.

Another suggestion was around the nature of the auditing undertaken. Currently, auditing is random in nature rather than systematic. Systematic auditing — more in line with the role typically played by an external auditor — would be more appropriate according to a number of key stakeholders.

### Northern Territory

As in South Australia, stakeholders in the Northern Territory noted that, while the principle underlying the extensive system of stakeholder consultation was sound, in practice the number of meetings and reports required to meet all legislated requirements was onerous and required the dedication of significant resources. Generally, the view was that all the meetings were useful in their own right, but that there are issues of overlapping membership and purpose, and as a result unnecessary duplication of effort. In particular:

- ARRAC was viewed as useful in bringing a diverse range of stakeholders together on a regular basis, but was criticised by some as having little obvious purpose (except for keeping everyone informed) or outcomes. It was described a number of times as a “talk fest”. That said, ARRAC has a specific role in allowing a wide range of stakeholders to be brought up to date on issues relating to uranium mining. The method may be open to debate, but it is suggested that some equivalent process would be required in order to meet community expectations
- ARRTC was viewed as useful as a forum for sharing technical knowledge and in playing an oversight role in relation to the SSD, but some stakeholders were unclear why so many agencies were involved, and why it was necessary for the operator to take an active role, given the scientific focus of the group’s remit. The reason for the operator’s engagement with ARRTC, however, is that the operator has specific accountability for scientific research programs into the impact of the mine on the wider environment. ARRTC allows for the scientific overview of key projects, including water release and rehabilitation trials amongst others
- the MTC has to be consulted on virtually everything that goes on at the Ranger mine, as well as undertaking monthly inspections, and a six monthly audit of operations. This was viewed by some as “regulatory overkill”. Stakeholders commented that the MTC currently works quite well, but that this is attributable to the high level of cooperation between members currently in place, rather than to any particular aspect of the Committee’s design.

In addition to ARRAC, ARRTC and the MTC, the SSD separately provides advice to the Commonwealth in any case. While it is recognised that each of these groups have a slightly different role, it raises the question why so many different forums are required. In particular, the need for both ARRAC and the MTC was questioned by some stakeholders, given that the information collection and reporting required under each overlap in a number of areas. This is particularly the case because of the virtual total overlap in membership between the two groups, except for environmental groups. It should be noted that the MTC was established under the Commonwealth — Northern Territory MOU and defines the roles of the SSD (formerly OSS), DRDPIFR and Northern Land Council. A process where DRDPIFR and SSD processed proposals in isolation could lead to criticism.

### 3.7 Transport

While State and Territory authorities are responsible for the transport of radioactive materials within their borders, two Commonwealth agencies also are involved. ARPANSA is responsible for providing a code of conduct for the transport of radioactive material, while ASNO is responsible for transport security.

In general, stakeholders were supportive of the framework for transporting uranium with the following exceptions:

- some industry representatives felt that the classification of uranium as a ‘Class 7’ substance under transport regulations did not reflect the actual risks associated with transporting the material. Further, because the supply of transport services suitable for Class 7 substances is limited and prices are relatively high as a result, they felt the classification was also imposing a significant cost burden. However, it must be noted that the classification of uranium as a Class 7 material is made by the United Nations, and applied by the International Atomic Energy Agency (IAEA), the International Maritime Organisation (IMO) and the International Civil Aviation Organisation (ICAO).

As such, despite stakeholder concerns, there is no change in the national regulatory framework which could affect the classification

- while a permit is required to transport uranium across State boundaries, a lack of access to major ports — such as the Port of Melbourne — was seen as a disadvantage for the industry
- the majority of stakeholders however were of the view that, where transport is concerned, there is no option other than to treat it as a hazardous substance, given community concerns, and the small — although positive — risks from radiation
- the transport of uranium is regulated by the relevant competent body within the jurisdiction in which transport is taking place<sup>39</sup>. In South Australia, this is the Minister for Environment & Conservation. In the NT, this is the Work Health Authority.

ARPANSA has published, through the Radiation Health Committee, the Code of Practice for the Safe Transport of Radioactive Material. This Code has been incorporated with the agreement of all State and Territory Health Ministers in the National Directory for Radiation Protection. The incorporation of the Code of Practice in the National Directory obligates all jurisdictions to adopt the Code within their existing regulatory frameworks. This can be achieved through direct reference in the regulations of the relevant Authority or by using the Code as a licence condition. All jurisdictions have now adopted the 2001 edition of the Code of Practice for the Safe Transport of Radioactive Material into their regulatory framework and will adopt the 2008 edition dependant on their legislative timeframes. The Code reflects the international requirements of the IAEA.

While the Code of Practice must be universally applied, some stakeholders asserted that there is a difficulty in readily crossing State boundaries due to different and inconsistent regulations in transporting hazardous materials. A review of parts of Australia's regulatory framework for radioactive materials undertaken by the IAEA in 2007 reflected on the number of authorities in Australia responsible for the transport of hazardous materials and the desirability of streamlining regulatory arrangements in the area of transport:

The ARPANS Act does not explicitly give to the CEO the responsibility for regulation of the transport of radioactive material, even for Commonwealth entities. .... The responsibility is shared by 11 different authorities (ARPANSA for Commonwealth entities, the six states, the two territories and the sea and air safety authorities). There is no memorandum of understanding between ARPANSA and either the Civil Aviation Safety Authority or the Australian Maritime Safety Authority. However, the Agencies informally discuss regulatory matters on a periodic basis. Since ARPANSA only regulates land transport for Commonwealth entities, the IRRS Team could not check which regulations are in place for international transport (sea and air). The regulations in force for land transport are IAEA regulations 1996 as revised in 2000. The current regulations of IAEA TS-R-1 2005 edition are not applied. The 2005 edition must be mandatory for international transport through the international modal regulations for sea and air transport.

For other countries having federal organizations (e.g. Canada, Germany and the United States of America) only one authority issues certificates of approval for packages. The IRRS team considers that the regulatory regime is not structured and resourced in a manner commensurate with the potential magnitude and nature of the hazard to be controlled (GS-R-1 2.1 in part) in particular if nuclear and uranium activities are expanded. Eleven authorities cannot reach the minimum staff to be efficient and

<sup>39</sup>

The list of competent authorities for other jurisdictions can be found at [http://www.arpansa.gov.au/pubs/rps/comp\\_auth.pdf](http://www.arpansa.gov.au/pubs/rps/comp_auth.pdf).



competent in the field of transport of radioactive material. The CEO of ARPANSA can issue only certificates of approval for land transport and for package applied by Commonwealth entities. Sea and Air safety authorities validate the certificate issued by ARPANSA in case of transport by sea or air.<sup>40</sup>

Key issues for the transport sector are:

- the lack of a single national authority responsible for issuing licences for the transport of hazardous materials; and
- lack of access for uranium exporters to a number of ports across States and Territories.

### 3.8 The ‘top ten’ areas for reform

Taking account of the current framework, the views of stakeholders and our own analysis, we have developed a list of the ‘top ten’ areas for reform of regulation in relation to uranium mining:

1. Access to land — the continuing bans on uranium mining in Queensland, and bans on exploration for uranium and mining in New South Wales and Victoria.
2. Duplication and overlaps in environmental regulation between the Commonwealth and the States.
3. Involvement of RET in assigning environmental conditions to export permits.
4. Incident reporting.
5. Monitoring, reporting and stakeholder consultations.
6. Transport regulations, including access to ports.
7. Access to Aboriginal land in the NT.
8. Territory and Commonwealth legislative framework in the Northern Territory.
9. The ongoing process of alignment between the broad outcomes based approach of the MARP and radiation specific nationally agreed process of RMP/RWMP in South Australia.
10. Issues relating to safeguards.

Chapter 4 outlines some principles for the effective and efficient regulation of uranium mining, and then analyses each of these ten reform opportunities in light of the framework for the best practice regulation of uranium mining.

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<sup>40</sup> International Atomic Energy Authority (2007), *Integrated Regulatory Review Service for ARPANSA*, page 90.

# 4 Principles underlying the regulation of uranium mining

*This chapter provides a rationale for regulating uranium mining, including identification of those reasons why uranium mining needs to be regulated differently to other mining activities. We then set out a set of principles for good regulation and assess the current system against these, concluding with a set of priorities for reform.*

## 4.1 Why regulate uranium mining?

### Market failures

Economic theory is clear that the role for government in private markets should be limited to those activities that set about to correct identified market failures. Action by government outside this framework can result in a distortion of market forces such that the overall costs of regulation to market participants, as well as to the community more broadly, will outweigh its benefits.

The development of an appropriate regulatory framework for uranium mining should therefore start in the first instance with an identification of those aspects of uranium mining where market failures exist — the regulatory tools that comprise the framework should be then designed to specifically target and overcome these clearly defined and identified market failures. As briefly set out in Chapter 2, there are six major areas of market failure in the context of uranium mining:

- *in return for **access to the uranium resource**, the obligation on mining companies to mine Australia's valuable resources in a responsible manner, and to provide a financial return to the Australian community.*

In the first instance, the rationale for regulating the Australian uranium mining industry derives from the fact that uranium – like many non-renewable resources – displays some public good characteristics.<sup>41</sup> In general, the role of the government in relation to resources as public goods is to make some determination about how these resources should be allocated amongst the community. In line with this, the property rights over uranium are held by the government on behalf of the Australian community. Other mineral resources such as coal, are treated in a similar manner.

- *the need to ensure **protection of the environment**, particularly in sensitive areas.*

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<sup>41</sup> Pure public goods are defined by two characteristics. They are both 'non-excludable' and 'non-rival'. Because they are non-excludable, public goods cannot be supplied through normal market mechanisms, in which provision is contingent on payment. Because they are non-rival, it would be inefficient to charge for their consumption, even if it were practical.

The natural environment also displays public good characteristics: in particular, consumption of ‘the environment’ by one individual does not reduce the availability of the good for consumption by others, and it is not possible to limit consumption of the good only to those prepared to pay for it. As a result, normal market mechanisms do not apply, and — in the absence of government intervention — those undertaking activities which may impact on the environment do not have the right incentives to necessarily act in a way which protects it. On this basis, government has a role in acting to protect the environment on behalf of the community. In relation to uranium, government regulation can assist in establishing a framework of incentives to ensure that mining activities are undertaken in a way which minimises environmental impact.

- ***Indigenous land rights and cultural heritage issues in areas in which mining activity is taking place.***

As with environmental values, issues related to Indigenous land rights and cultural heritage more broadly are likely to be undervalued by the market. Government regulation can facilitate improved outcomes for all parties via appropriate regulation.

- ***Occupational health and safety concerns associated with mining activities.***

Governments have a legitimate ‘command and control’ role in setting minimum standards for workplace safety in order to ensure that workers are not put at risk during the course of their employment.

- ***Radiation protection issues applying to workers along all parts of the uranium supply chain, and to local communities more broadly.***<sup>42</sup>

As with occupational health and safety, governments have a legitimate role in mandating a system of management in relation to potentially hazardous materials in the workplace, such as uranium. There are also broader issues concerning public health, community well-being and environmental integrity. In particular, in the case of radiation protection, externalities may arise if users of radioactive substances expose the public (or the environment) to harmful levels of radiation through unsafe handling, administration or disposal. The costs to the community that could arise from this activity provide a justification for government intervention to prevent the costs from arising in the first instance.

- ***The risks of proliferation of nuclear materials. In particular, safeguards established under the Australian commitment to the NPT aim to ensure that the use of Australia’s exported uranium is only for peaceful and non-military applications.***

As with radiation protection issues generally, governments have a role in putting in place standards to minimise the risks to the community that could potentially arise from the proliferation of materials with hazardous potential such as uranium. Under international treaty obligations, this role extends to the protection of communities internationally, as well as within Australia.

The first four of these market failures apply to mining activities generally, while the last two — radiation protection and proliferation risks — are unique amongst mining activities to uranium.

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<sup>42</sup> Many of the environment protection issues associated with uranium mining are also issues of radiation protection. There is therefore substantial cross-over in the ‘environment’ and ‘radiation protection’ rationale for regulation of the industry.

## Why uranium is different to other resources

Logic would suggest that a uranium mine should be treated no differently to any other mine. Any hazards arising from the mine would be assessed during the approvals process, in particular in the course of the EIS, and appropriate conditions would be imposed on the project proponent.

However, there is clearly a higher level of community concern in relation to uranium mining than with other mining activities. Therefore, any assessment of a uranium mine needs to deal with community perceptions as well as the actual level of hazard involved.

There are therefore two key issues in the context of uranium mining that can be used to justify a unique approach to regulation:

- first, while small, the *actual risks* of uranium mining activities — most obviously in terms of the risks of proliferation — are real and positive<sup>43</sup>
- secondly, the *perceived risk* of uranium mining from the community's perspective may justify a different level of government involvement than the actual scientific risks would imply.

### *Actual risks*

Regulation targeting the radiation protection and proliferation-related externalities associated with uranium mining<sup>44</sup> aims to:

- prevent the exposure of workers, the community and the environment to dangerous levels of radiation
- ensure that nuclear materials do not fall into the possession of individuals or nations who intend to use them for non-peaceful purposes — ensure effective non-proliferation.

Those parts of the regulatory framework that are unique to uranium — that is, radiation protection regulation and regulations to prevent proliferation — therefore aim to avoid unlikely, but potentially very significant, outcomes. Indeed, the vast majority of stakeholders are in agreement that the risks to human health or the environment arising from a uranium mining operation are extremely small. Nevertheless, the risk of both — particularly proliferation — remains potentially positive and therefore must be managed by a responsible government acting in the interests of the broader community. The NCP Review of Radiation Protection Legislation summarised this view in relation to radiation protection as follows:

Under current radiation safety practices in Australia the risk of occurrence of a radiation risk causing event is unlikely. However, as such an event can have significant consequences, ... strict control measures are necessary to prevent such an event...

...The low incidence of serious accidents or incidents in Australia involving ionising or non-ionising radiation suggests that from a purely rational economic perspective, it may be possible to argue that legislative intervention may be inappropriate, as the likelihood of an externality is low. Nevertheless, the potential for externalities to occur continues to be a legitimate reason for legislative intervention for radiation protection for the following reasons:

<sup>43</sup> Note that radiation is not only unique to uranium mining. It is also in coal, mineral sands, etc, in very small amounts.

<sup>44</sup> Noting that Australia's thorium resources contained in monazite, a by-product of mineral sands mining, are also radioactive.

- the need to manage significant radiation risks.
- the uncertain consequences of exposure to radiation, the effects of which may remain latent for long periods.
- the assumption for radiation protection purposes that there is no threshold dose and that the probability of cancer is directly proportional to dose.

ARPANSA 2001, *National Competition Policy Review of Radiation Protection Legislation*, pages 7-25.

This seriousness of the potential impacts arising from mining of uranium implies that ‘black letter law’ regulations are likely to be appropriate. As in all cases — and more so in a uranium context where the likelihood of an adverse event is low — the challenge is to implement this ‘black letter law’ in an efficient and effective way which does not unreasonably inhibit industry growth.

Recognition that there would be distinct advantages in achieving a nationally uniform framework for radiation protection and nuclear safety control has long been accepted. This recognition led to the Australian Health Ministers' Conference (AHMC) in 1997 charging an expert group led by Dr. J McNulty to develop recommendations on how this outcome might be achieved. In July 1998, the Australian Health Ministers' Conference endorsed the McNulty Report, which provided broad recommendations on a new ‘model’ radiation protection regulatory framework for Australia. As the report did not address legislative or administrative means for achieving national uniformity, Ministers asked that a panel, comprising representatives from the States, Territories and the Commonwealth, be formed to progress national uniformity. The National Uniformity Implementation Panel (Radiation Control) [NUIP(RC)] was formed in 1998, and subsequently became a working group of ARPANSA’s Radiation Health Committee (RHC).

The NUIP(RC) found that national uniformity can be achieved with either template, mirror or complementary legislation but this would require jurisdictions to overhaul their existing legislative frameworks. National uniformity could also be progressed through non-legislative options, such as national standards and mutual recognition, which could facilitate uniformity without substantial legislative changes. Two jurisdictions opposed the use of legislative methods for achieving national uniformity. Some other jurisdictions expressed reservations about the value of national legislation in radiation protection. As such, the NUIP(RC) recommended a non-legislative approach for the short to medium term and proposed the development of a national guidance document, the National Directory for Radiation Protection (the Directory) that could detail agreed principles, policies and practices for radiation protection and the safety of radioactive sources. Jurisdictions would adopt the principles as reviews of legislation come forward.

Codes and Standards developed through ARPANSA’s Radiation Health Committee are also subject to the COAG *Principles and Guidelines for National Standard Setting and Regulatory Action*.

### *Perceived risks*

As well as regulating the actual risks unique to uranium mining, government has a role in managing the *perceived* risk of that activity on behalf of the community. Perceived risk relates to the community’s perception of the risks associated with uranium mining, and is generally regarded as being significantly higher than actual risk. Perceived risk may be generated as a

result of high profile public failures of the regulatory system in areas related to uranium mining, albeit at nuclear power plants, such as Chernobyl or Three Mile Island.

Even where it cannot be justified by science, managing perceptions can often be an important part of regulation. From the community's perspective, it is apparent that there is a strong desire to see that uranium is managed and regulated in a manner that not only satisfies actual risks associated with uranium, but also that government manages perceived risks about the use of and exposure to radiation sources and proliferation risks — which may manifest themselves in broader concerns that are not necessarily based on science.

Peter Sandman<sup>45</sup> is a leading proponent of regulatory economics in relation to managing perceived risk, and his theory divides total risk into two components:

- the technical side of risk (magnitude times probability) known as *hazard*
- the rest of risk (factors like control, trust, dread, voluntariness and responsiveness) known as *outrage*.

Sandman argues that people's response to risk is mostly a response to outrage: when hazard is high and outrage is low, people under-react; and when hazard is low and outrage is high they over-react. Uranium mining is an example of a regulatory situation in which the level of outrage is high relative to the level of hazard.

Public demand for a government response to low-hazard high-outrage risks presents a substantial regulatory challenge. When outrage is ignored and allowed to build, the pressure to over-regulate hazard builds as well. However regulating hazard in response to outrage can act to magnify rather than reduce the extent of the perceived risk. Issues dominated by outrage therefore need to be regulated in a way which sets out to manage that outrage, rather than which focuses on regulating the low hazard. Regulatory strategies which may be effective in managing outrage generally focus on community education about the extent of the real risks involved.

Given the relative scale of hazard and outrage in the uranium mining context, it is probable that a number of the issues of overlap and duplication in the current regulatory framework have arisen as a result of governments using hazard-management strategies to address community outrage about uranium mining. Notwithstanding the earlier argument about the positive nature of some of the *actual* risks around the industry, improvements in the regulatory system should aim to better target regulations towards the problems the system is aiming to address. In particular, public education through forums such as consultative committees about the real risks that the industry entails should be a key focus of future regulatory arrangements.

## 4.2 Principles of good regulation

Good regulation achieves its goal and brings the greatest net benefit to the community. It will typically have three identifiable broad characteristics.

First, less prescriptive, outcome focused regulation is likely to be more effective than highly prescriptive input focused regulation. Prescriptive regulation focuses on the inputs to a process and 'tells' the regulated party what they must do and how they must do it. Outcome focused regulation specifies the outcomes to be achieved but does not prescribe the way that the outcome is to be achieved. This allows the regulated party to develop an approach that is the most efficient in their particular circumstances.

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<sup>45</sup> Background papers on Sandman's theory of total risk can be found at <http://www.psandman.com>

Secondly, the more recent approach to regulation is the use of market-reinforcing regulatory measures that create or support the role of the incentives faced by producers and consumers, and allow the parties to respond to these incentives in the marketplace. The approach recognises that regulators often face significant constraints, the most important of which is the asymmetry of information between it and the regulated party and so addressing the availability of information is often a key element. The use of less prescriptive regulation and incentive approaches is consistent with the notion that good regulation is also light handed, involving the minimum level of government involvement needed to achieve the objective.

Thirdly, it is important to be able to assess the effectiveness of regulation in achieving the government objectives in the short and long term. Each regulatory activity will create incentives for the regulated parties to act in certain ways. Sometimes, unanticipated incentives can exist that encourage regulated parties to undertake activities that they would not normally perform. Similarly, loopholes can emerge in the regulatory frameworks allowing regulated parties to avoid undertaking desirable activities. Regulated parties can also find that they are subject to overlapping and inconsistent regulatory requirements. These are examples where the desired regulatory objectives are not being achieved.

Taking these broad ideals as a base, there are a number of principles of ‘good regulation’ to guide decisions about the appropriate regulatory approach:

- first, regulation must be the most effective way of addressing an identified problem. For example, it must
  - invoke the most direct means of achieving the desired outcomes
  - be flexible enough to cope with behavioural changes in compliance
- secondly, it must impose the minimum burden on those regulated. For example:
  - be limited to what is necessary and consistent with the protection of community interests
  - only impose a compliance burden which is reasonable in relation to the magnitude of the problem being addressed
  - maintain consumer choice
  - be compatible with other laws and regulations.
- thirdly, it must minimise the costs imposed on others. For example:
  - not restrict competition, unless a clear public benefit can be demonstrated
  - contain effective and cost-efficient enforcement regimes.

COAG has put forward some specific principles for guiding the formulation of national standards and regulatory measures by Ministerial Councils and other regulatory bodies. These principles (Table 4.1) are very much in line with those discussed above, and with the principles for a uranium mining regulatory framework put forward by the UIF Steering Group and outlined in Chapter One.

**Table 4.1**  
**COAG PRINCIPLES OF GOOD REGULATION**

| Principle   | Description   |
|---|---|
| <i>Minimising the impact of regulation</i>                      | Working from an initial presumption against new and increased regulation, the overall goal is the effective enforcement of stated objectives. Regulatory measures and instruments should be the minimum required to achieve the pre-determined and desirable outcomes. It may be necessary to introduce new regulation which replaces existing and less satisfactory regulation.  |
| <i>Minimising the impact on competition</i>                     | Regulation should be designed to have minimal impact on competition. To meet the requirements of National Competition Policy, regulation should not restrict competition unless it can be demonstrated that: (1) the benefits outweigh the costs; and (2) the objectives of regulation can only be achieved by restricting competition.   |
| <i>Predictability of outcomes</i>                               | Regulation should have clearly identifiable outcomes and unless prescriptive requirements are unavoidable in order to ensure public safety in high-risk situations, performance-based requirements that specify outcomes rather than inputs or other prescriptive requirements should be used. This principle should also apply to any standards that might be referred to in regulation.   |
| <i>International standards and practices</i>                    | Regulation should be compatible with relevant international or internationally accepted standards and practices in order to minimise the impediments to trade. Regulation should not be applied in a way that creates unnecessary obstacles to international trade.   |
| <i>Restrictions should not restrict international trade</i>     | Discrimination between domestic products or imported products should be avoided so as to avoid unnecessary obstacles to international trade.  |
| <i>Regular review of regulation</i>                             | It is recommended that a regular review of regulation take place at intervals of no longer than 10 years.   |
| <i>Flexibility of standards and regulations</i>                 | Specified outcomes of standards and regulatory measures should be capable of revision to enable them to be adjusted and updated as circumstances change. However, it is important to ensure that amendments to regulatory measures and instruments do not result in undue uncertainty in business operations and in so doing, impose excessive costs on that sector.  |
| <i>The exercise of bureaucratic discretion ('transparency')</i> | Good regulation should attempt to standardise the exercise of bureaucratic discretion, so as to reduce discrepancies between government regulators, reduce uncertainty and lower compliance costs. This, however, should not preclude an appropriate degree of flexibility to permit regulators to deal quickly with exceptional or changing circumstances or recognise individual needs. Nor should it ignore the danger of administrative action effectively constituting regulation and thus avoiding disciplines of regulation review. There is a need for transparency and procedural fairness in regulation review and administrative decisions should be subject to effective administrative review processes. |

Source: Council of Australian Governments (2004), *Principles and guidelines for National Standard Setting and regulatory action by Ministerial councils and standard-setting bodies*, amended by COAG June 2004.

In summary, the COAG principles require that a regulatory framework:

- has minimal *impact*



- does not restrict *competition*
- is *predictable*
- is consistent with *international best practice*
- does not restrict *international trade*
- is subject to *regular review*
- is *flexible*
- is transparent.

### 4.3 Assessment of the current system

Table 4.2 below assesses the overall current regulatory framework for uranium mining in Australia against the COAG principles for good regulation. It is apparent that — with the exception of the need to provide for regular review of the regulatory framework (which this current process clearly seeks to fulfil) — the current system for uranium mining regulation does not accord with some of CoAG’s criteria for ‘good regulation’. Areas of particular issue are:

- because of the significant inefficiencies inherent under current arrangements, it is likely that the *impact* of the regulatory system on the industry is considerably out of line with the outcomes it seeks to achieve
- the regulatory framework is also likely to be reducing *competition* in the uranium industry, and in particular is generating barriers to entry because of the time and resources required to gain the approvals necessary to commence uranium mining operations – a high standard of minimised regulation is required alongside high safety standards
- current arrangements, on average, are characterised by a perceived lack of *predictability* and *transparency* of outcomes, with inconsistency applying across and within agencies and jurisdictions.

**Table 4.2**  
**ASSESSMENT OF CURRENT FRAMEWORK AGAINST COAG PRINCIPLES**

| Principle   | Assessment   |
|---|--|
| <i>Minimising the impact of regulation</i>                    | Administrative burden substantial and likely to be excessive relative to the outcomes being achieved. Significant inefficiencies apparent, in particular: <ul style="list-style-type: none"> <li>Continuing bans on uranium mining.</li> <li>Duplication of effort by CW and State/Territory agencies, especially in relation to environmental assessment, approval and on-going management leads to excessive impact of regulation relative to the outcomes achieved.</li> <li>Excessive systems of consultations and reporting requirements leading to inefficiencies and wasted resources.</li> </ul> |
| <i>Minimising the impact on competition</i>                   | Again, the bans on mining in most Australian States obviously has a major impact on competition.<br>Onerous system of regulation may be discouraging new entrants, especially the requirements of the EPBC Act.<br>Inconsistent transport regulations across jurisdictions leads to reduced competition in the supply of, and access to, transport services.   |
| <i>Predictability of outcomes</i>                             | Significant uncertainty exists around expected timelines for assessment and approvals processes.<br>Inconsistent regulatory framework with a number of different regimes currently in play across the industry.  |
| <i>International standards and practices</i>                  | Incident reporting out of step with best practice international models.<br>Dispersion of radiation protection mine approvals regulation across a large number of agencies out of step with international best practice (e.g. Canadian model).<br>Emphasis on monitoring and random audit as opposed to systematic audit and self-regulation.   |
| <i>Restrictions should not restrict international trade</i>   | Mining bans in most States inhibit Australia's exports and other countries' ability to import uranium.<br>Restrictions on access to ports in a number of jurisdictions may be reducing the ability of the industry to effectively access some export markets.  |
| <i>Regular review of regulation</i>                           | Somewhat complies. Future reviews will be required to fully address any further regulatory issues – this is standard of any evolving industry sector.  |
| <i>Flexibility of standards and regulations</i>               | Continuation of EPIP regime, and Ranger Government Agreement in particular, necessitates the running of two parallel regimes which suggest little flexibility to accommodate new arrangements seamlessly.  |
| <i>The exercise of bureaucratic discretion (transparency)</i> | Outcomes (in particular licence conditions) can differ following assessment by different agencies/jurisdictions suggesting a lack of transparency in decision-making.  |

Table 4.3 takes the 'top ten' areas for reform identified in Chapter 3 and examines the extent to which each of these is consistent with the COAG principles. Based on this assessment, the opportunities for reform are prioritised according to the extent to which resolving each would

bring the overall framework for regulation of uranium mining into line with the COAG best practice standard.

**Table 4.3**  
**'TOP TEN' PRIORITY AREAS FOR REFORM**

| Reform area   | Inconsistency with COAG principles under current arrangements                         |
|---|---|
| 1 <i>Access to land - bans on uranium exploration and mining in various States</i>          | Impact<br>Competition<br>Predictability<br>International stds.<br>International trade |
| 2 <i>Commonwealth involvement in environmental regulation via the EPBC Act</i>              | Impact<br>Competition<br>Predictability<br>International stds.<br>Transparency        |
| 3 <i>Involvement of RET in managing environmental conditions attached to export permits</i> | Impact<br>Predictability<br>Transparency  |
| 4 <i>Incident reporting</i>   | Impact<br>Flexibility   |
| 5 <i>Monitoring, reporting and stakeholder consultations</i>                                | Impact  |
| 6 <i>Transport regulations and access to ports</i>  | Impact<br>Competition   |
| 7 <i>Access to Aboriginal land in the Northern Territory</i>                                | Impact<br>Competition   |
| 8 <i>Territory and Commonwealth legislation in the Northern Territory</i>                   | Impact  |
| 9 <i>The lack of alignment between the MARP and RMP/RWMP in South Australia</i>             | Impact<br>Competition<br>Predictability<br>Transparency                               |
| 10 <i>Safeguards</i>  | N/A   |

We conclude that:

- the top priority for reform is to remove bans on mining and exploration in States where bans exist.

- the next most important area for reform is the involvement of both the Commonwealth and the host State/Territory government in environmental assessment and approvals processes. The current arrangements are likely to be resulting in unnecessary regulatory impact, reduced competition, a lack of predictable and transparent outcomes, and are out of line with international best practice. Where it can be demonstrated that a more efficient avenue exists for achieving the required outcomes, the current 'hands-on' role played by both Commonwealth and State agencies in environmental regulation of uranium mining should be reviewed
- major reform priorities exist, largely because of issues of regulatory impact, predictability and transparency
  - remove mining and milling as a 'nuclear action' from the EPBC Act
  - the need to better align the regulatory processes currently being undertaken by PIRSA and the RPD EPA in South Australia
  - the role of RET in managing environmental conditions on export permits for mines assessed under the now defunct EPIP Act
- a range of other opportunities exist to improve the quality of the current regulatory framework relative to the COAG ideal. These are in the areas of land access and legislative framework in the Northern Territory, stakeholder consultation arrangements, incident reporting and transport of uranium (see section 3.7).

Reform options in each of these areas are presented in Chapter 5.

## 4.4 Cost implications

All regulation will impose costs on both the regulated party and the body — typically government — charged with designing and enforcing that regulation. The issue in designing an optimal regulatory framework is the need to implement regulation that achieves the maximum benefit for the community at the least possible cost. According to the Commonwealth Government's Best Practice Regulation Handbook

The challenge for government is to deliver effective and efficient regulation — regulation that is *effective* in addressing an identified problem and *efficient* in terms of maximising the benefits to the community, taking account of the costs...The policy development process should at least ensure that the benefits to the community of any regulation actually outweigh the costs, and give some assurance that the option chosen will yield the greatest net benefits.

Australian Government (2006), Best Practice Regulation Handbook, p. 2.

Box 4.1 below provides information on the types of costs that can arise from regulation.

**Box 4.1****THE COSTS OF REGULATION**

Costs to businesses, including small business, might include:

- ‘paper burden’ or administrative costs to businesses associated with complying with and/or reporting on particular regulatory requirements;
- licence fees or other charges levied by government;
- changes likely to be required in production, transportation and marketing procedures;
- shifts to alternative sources of supply;
- higher input prices; and
- restricted access to markets.

Costs to consumers may include:

- higher prices for goods and services resulting from restrictions on competition;
- reduced utility (quality, choice etc) of goods and services; and
- delays in the introduction of goods to the marketplace and/or restrictions in product availability.

Costs to the community and/or the environment may include:

- environmental degradation or pollution;
- reduction in health and safety;
- undesirable redistribution of income and wealth; and
- lower employment levels or economic growth.

Costs to government may include:

- running education campaigns/providing information;
- administration of licensing/inspection services;
- collection and collation of business information; and
- enforcement costs.

Compliance costs can usually be divided into two broad categories:

- *one-off costs* — such as acquiring sufficient knowledge to meet regulatory obligations, purchasing/leasing additional equipment and buildings, legal/consultancy fees and training expenses; and
- *recurring and ongoing costs* — such as monitoring processes to ensure ongoing compliance, preparing periodic reports to a regulator, undertaking audits or inspections (that is, costs arising from the ongoing need to devote additional time and resources to satisfying regulatory requirements).

Source: Australian Government 2006, *Best Practice Guide to Regulation*.

Costs imposed on industry, governments and the community more broadly by regulations are therefore only a concern where the benefits derived from those regulations could be achieved in a more efficient manner. In this context, where the current regulatory framework for uranium mining is imposing a burden on industry — and on government as regulators and the community more broadly — that is greater than the overall benefit of that regulation, the regulation will be resulting in unnecessary costs. There are several ways in which the costs of the current regulatory framework for uranium may be deemed unnecessary:

- where the current regulatory framework is too heavy handed relative to the actual risks implied by the activities of the industry
- where there is unnecessary overlap and duplication of regulatory effort either across or within jurisdictions, or between government and industry itself
- related to these, where the outcomes (or benefits) currently being achieved by the regulatory framework could be achieved in a more cost effective way.

Regulatory overlaps are a particular concern from a cost perspective. Regulatory overlaps refer to situations where two agencies or levels of government put in place individual regulations that

effectively set out to manage the same risk. Where the two (or more) sets of regulations require the risk to be managed in different ways — but with the intention of achieving the same outcome — the regulatory system will be inefficient, with an over-allocation of resources required to meet, and manage, regulatory requirements.

## Industry

The *one-off* regulatory costs for industry associated with an application to develop a uranium mine typically include the costs of acquiring sufficient knowledge to meet regulatory obligations, salary and other administration costs involved in completing assessment and approvals-related documentation; and the cost of delays to development caused by the regulatory process, such as lost revenue, foregone commercial opportunities and costs of time and resources invested to resolve the issues. The vast majority of *on-going* regulatory costs imposed on uranium mining companies will be compliance costs. That is, costs associated with the necessary monitoring processes to ensure ongoing compliance, preparing periodic reports to the regulator, and undertaking audits or inspections etc – these are typical costs of complying with regulation and would exist for a firm whatever regulatory scheme is in place – the objective is to make sure these compliance costs are minimised for the firms involved, such as removing any duplicating processes.

Where the one-off or on-going costs imposed on industry are difficult to justify in terms of the actual risk inherent in the industry's activities, some of these costs may be 'unnecessary'. Similarly, where a more efficient regulatory system could be developed to achieve the same outcomes as currently — for example one in which the involvement of multiple jurisdictions and agencies was significantly streamlined — costs that could be avoided are also classified as unnecessary costs.

Industry representatives were reluctant — for reasons of commercial confidentiality — to provide detailed estimates of the costs of regulatory inefficiencies in the current system. Nevertheless, they did indicate that the costs are significant and potentially could have an impact on the commercial viability of a mine.

Because the regulatory regime that applies to each of Australia's current operating uranium mines is unique to each mine, it is very difficult to attempt to quantify the costs of this regulation, particularly given the reluctance of industry to disclose their compliance costs. Similarly, the assessment and approvals process for new mines tends to vary greatly depending on a number of factors including the location and scale of the mine, and the potential environmental impact that the development implies.

A number of industry representatives were of the view that the fact that the majority of mining companies either currently operating uranium mines in Australia or planning to develop new mines are of a substantial size has meant that the inefficient imposition of regulatory costs has been able to be tolerated to this point. The considerable resources of a larger company make it feasible for a company to commercially develop uranium in Australia despite the inefficient costs caused by over-regulation. Over time however, as smaller companies aim to become involved in the industry, the costs of inefficient regulation may act as a barrier to entry into the industry.

## Government

The major costs to government of the regulatory regime for uranium mining will fall into the following categories:

- administration of licensing and inspection processes
- collection and collation of information on industry activity
- enforcement costs.

Again, these costs are only unnecessary if the regulatory outcomes they are achieving could be achieved in a more efficient way. Our analysis of the current system suggests that in a number of respects, current costs for government are excessive (relative to the efficient cost of generating the same regulatory benefits) in a number of areas:

- environmental assessment at State and Commonwealth level — where two assessment and approvals processes (e.g. under the EPBC Act and the parallel requirements at State level) are essentially duplicating each other, it is not obvious that overall public resources are being utilised in the most efficient manner (note that although there is now a bilateral agreement between the Commonwealth and SA Governments to provide accreditation processes for a streamlined approval solution, change may only occur gradually)
- stakeholder consultations appears to be an area where substantial government — and industry — resources are being used, but to little obvious effect in terms of better policy, particularly the mandated meetings in South Australia
- the very ‘hands-on’ monitoring role undertaken by the SSD, and by State agencies in South Australia, is likely to be generating considerable costs that may be able to reduced, with no increase in risks to the environment or the community, if a more traditional audit role was adopted.

As well as the costs to industry and government, inefficient regulation will give rise to costs for the community more broadly. In particular, economic growth will be lower than it could be if resources are being used inefficiently to develop, implement and comply with uranium mining regulations that are not least cost. There may also be implications for Australia’s economic well-being if regulatory barriers act as an inhibitor to growth in an industry with substantial potential to contribute to Australia’s future economic prosperity. It should also be noted that if the streamlining is not done correctly, there is a risk that the whole industry could be significantly disadvantaged.

# 5 Reform options

*This chapter sets out our recommendations for reform. Reform options are presented in terms of two alternative approaches. The first is the so-called comprehensive approach, under which radical changes would be introduced so that effectively uranium mine proponents and incumbents would only need to deal with one jurisdiction in terms of environmental regulation. The alternative option is to address each of the top nine areas for reform within the context of the existing system.*

## 5.1 Objectives of reform

The following ten areas have been identified in this report (Section 4.3) as the priority areas for reform:

1. Access to land — the continuing bans on uranium mining in Queensland, and bans on exploration for uranium and mining in New South Wales and Victoria.
2. Duplication and overlaps in environmental regulation between the Commonwealth and the States.
3. Assigning environmental conditions to export permits and involvement of RET in managing these.
4. Incident reporting.
5. Monitoring, reporting and stakeholder consultations.
6. Transport regulations, including access to ports.
7. Access to Aboriginal land in the NT.
8. Territory and Commonwealth legislative framework in the Northern Territory.
9. Continued improvement in the alignment between the MARP and RMP/RWMP in South Australia.
10. Issues relating to safeguards.

It is also fair to conclude, however, that criticisms of the regulatory framework for uranium mining can be (and often are) over-stated. Some of the ten areas identified above, while they may be irritants, are not material in terms of constraining the industry's growth. In other cases, incumbents have learned to live with a sub-optimal regime and take the view that reform would be a costly, risky and time-consuming process and 'better the devil you know'.

Nevertheless, the industry is clearly not satisfied with aspects of the present regulatory regime. Particular criticisms focus on the:

- continuing bans on uranium mining in some States
- duplication between Commonwealth and State regulators and the number of agencies a project proponent has to deal with
- number of stakeholder meetings required
- the extent of incident reporting requirements.



The fundamental objective of this project, therefore, is to develop options to streamline the regulation of the uranium mining industry. This is recognised by the Commonwealth, South Australian and Northern Territory Government departments which commissioned this report.

## Options for reform

Two broad alternative approaches to reform are identified.

The first option is to develop a comprehensive solution to regulatory impediments. This is in response to the terms of reference for this project, which, in the explanatory notes, called for, *inter alia*:

“recommendations for specific actions to harmonise and/or streamline the regulatory arrangements applying to the uranium mining sector across jurisdictions. This should be considered from a ‘zero base’. That is, the review should question the purpose and existence of program, licence, reporting requirements and meetings, and not just see how the current situation might be improved.”<sup>46</sup>

‘Comprehensive’ options are evaluated in Section 5.2 below.

The second option is to approach the ten areas for reform from within the current framework. This approach is addressed in Section 5.3.

## 5.2 ‘Comprehensive’ reform options

‘Comprehensive’ options to reform the regulatory system for prospective and operating uranium mines are based on the proposition that the objective of streamlining regulation and eliminating overlaps can only be achieved by abandoning the present framework. In the interests of creating a supportive regulatory environment for investment in uranium mining in a federal system, it would be desirable, to the maximum degree possible, to create a situation where only one jurisdiction was involved.

The first issue, of course, is whether this proposition itself is valid. After all, we are not looking for comprehensive solutions to the regulation of, say, iron ore or coal mines. In our federal system, they are subject mainly to State regulation but also with the Commonwealth having various powers under which it can (and does) intervene. We return to the question, why is uranium different?

The response to this is that, in most respects, uranium is not different. However, the one feature that gives rise to a difference, namely the presence of potentially hazardous radiation, is significant (noting that radiation also affects other mineral sectors such as mineral sands). Yet again there is a twist: it is not so much the actuality of this risk — all Australian uranium resources discovered to date exhibit relatively low levels of radioactivity — as the public perception of risk that makes it a significant issue.

Two conclusions can be drawn from this. First, if there is to be a comprehensive solution then, at the least, it is the only area of difference between uranium and other mining activities — radiation — that needs to be addressed. Given that in most respects uranium mining is no different from mining generally, to have a different approach to uranium mining in any comprehensive way would be unjustifiable.

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<sup>46</sup> *Contract for the Provision of Services*, DITR, page 36.

The second conclusion is that if we are essentially dealing with an issue of public perception of risk, rather than the actuality, it is questionable whether the costs and disruption associated with a comprehensive solution are warranted. Comprehensive solutions are by their very nature, often disruptive to established arrangements and are bound to be opposed by some stakeholders. Particularly in a sensitive area such as uranium mining, this may also blunt the appetite for radical reform. A comprehensive solution will only be justifiable, therefore, if it can provide very substantial benefits so as to overcome these disadvantages.

Following on from the discussion above, any comprehensive option would aim to have the radiation aspects of uranium mining regulated by a single jurisdiction. This inevitably leads to three alternatives, namely:

- the creation of a new national body
- a State-based single process
- a Commonwealth-based single process.

Within these options there is a need to consider whether it makes sense, for efficiency reasons, to include all environmental issues with the radiation regulation. In that context, it also is appropriate to consider whether it would be more efficient for a new national body to assume the responsibility for all radiation issues arising from existing ‘nuclear actions’ in Australia (while noting that the terms of reference for this review are limited to uranium mining).

These options are considered below.

### Option 1: A national regulatory body

In order to address the first two of these three concerns, i.e. overlap and duplication, and shortage of experts, one option would be to create a single *national* body addressing most existing ‘nuclear actions’ (as defined under the EPBC Act) undertaken in Australia, including uranium exploration and mining. Such an approach would be consistent with the UMPNER report which recommended the harmonisation of Australia’s regulatory regime for uranium mining by the establishment of a national regulator by the Commonwealth, States and Territories to regulate nuclear fuel cycle activities.<sup>47</sup>

There would be advantages if this body were to be constituted as a national agency. While many issues associated with uranium mining clearly lie within the States’ jurisdiction, it is unlikely that the Commonwealth would vacate the field it occupied for half a century even before the passage of the EPBC Act.

The single body, therefore, would be a *national* statutory authority, established under CoAG with a Board that is appointed by, and answerable to, a Ministerial Council. A suggested working title for the agency is the Australian Radiation Management Authority (ARMA). ARMA would regulate all aspects of the uranium industry in Australia in terms of the impacts on human health and the physical environment.

In the first instance at least, certain areas should be excluded from ARMA’s ambit. First of all, the ANSTO facility at Lucas Heights could be excluded, solely because the Commonwealth has established processes in place for around fifty years and these appear to work very well. In addition, State and Territory health departments have already established appropriate processes in the areas of nuclear medicine, including X–Rays and the use of radioactive isotopes, as has

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<sup>47</sup> Department of the Prime Minister and Cabinet (2006), *op. cit.*, paras 9.4 and 9.5.

the Commonwealth, including issues associated with the Australian Defence Force and Australian Customs Service.

The consultants consider that in the first instance the following existing agencies, or parts of agencies, could be brought together to form ARMA:

- the Supervising Scientist Division from DEWHA
- relevant sections of the Commonwealth body ARPANSA
- the part of the Radiation Protection Division of the South Australian EPA that participates in the regulation of uranium mining in that State
- relevant parts of the DRDPIFR in the Northern Territory that regulate radiation and environmental aspects of uranium mining
- the part of ASNO that is responsible for domestic security, such as at uranium mines and in the transport of radioactive material.

#### *What would ARMA do?*

One of ARMA's first actions, under the direction of a CoAG Ministerial Council, would be to establish a set of consistent national standards for the effective regulation of the industry. Since regulations already exist in relevant jurisdictions; this would in part be a matter of codifying existing standards and eliminating any inconsistencies or overlaps. In addition, however, standards would need to be established that could be applied to new jurisdictions if uranium mining occurs. Overall, the regulations should draw heavily on established practices overseas where these are world's best practice and not impose an unjustified burden on the local industry. These standards would then be subject to approval by the Ministerial Council.

ARMA would have regulatory responsibilities in the following areas:

- environmental and health safety issues in the approval of new uranium mines
- environmental and health safety issues in monitoring the operations of uranium mines (including incident reporting and management)
- establishing national protocols for community and stakeholder consultation for uranium exploration and mining, particularly with Indigenous communities
- security of uranium mines
- the transport of radioactive materials within Australia
- the storage or disposal of radioactive waste
- making recommendations to the Commonwealth Minister on export licenses
- undertaking or commissioning the research necessary for properly discharging its responsibilities
- reporting annually on its operations.

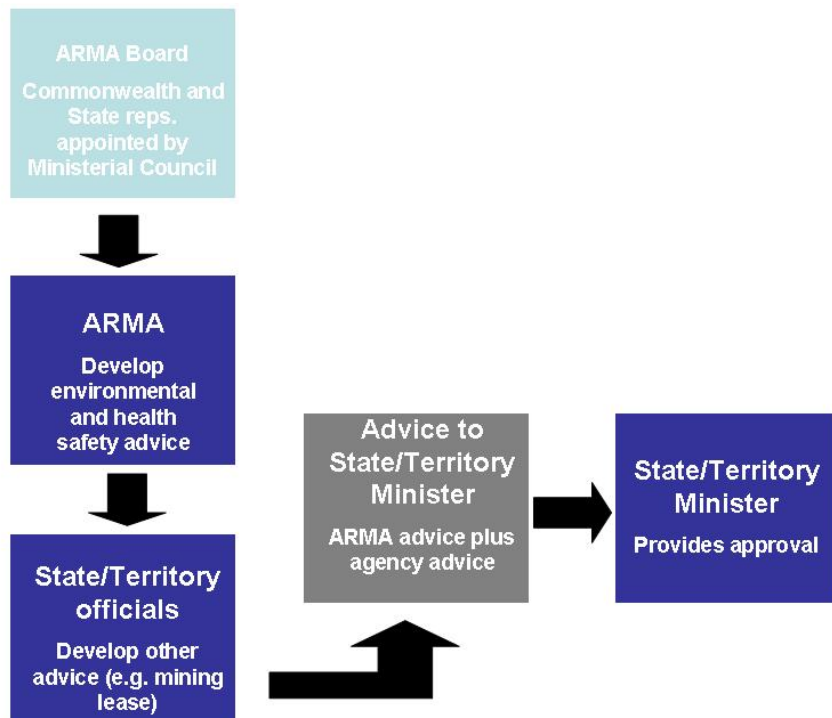
#### *ARMA and uranium mines*

Under the ARMA proposal there would be only one approvals process which would involve the Commonwealth and State/Territory jurisdictions in a national agency. This would obviate the

need for the ‘nuclear actions’ clause, which could be removed as one of the seven areas of national environmental significance under the EPBC Act. Therefore, the Commonwealth would be separately involved in this process only if a mine application triggered the EPBC Act under one of the six remaining areas of national significance. In that instance, it would be expected that this assessment would be made as part of a single EIS approvals process, with the assessment task referred to the host jurisdiction’s EPA or other relevant environmental regulators.

The determination to approve a new or extended uranium mine would be made by the relevant Minister in the host State or Territory, acting on the advice of officials who would make their judgements on the basis of the EIS prepared by the company in response to the government’s requirements. The national body, ARMA, would provide advice on the environmental and health aspects of the approvals process to the main recommending body in the host jurisdiction (eg PIRSA), while State or Territory officials would develop their own advice on the remaining issues. In South Australia, for example, this would be PIRSA, and in other jurisdictions it would probably be the mines department. It would be expected that the terms and conditions of approval stipulated by ARMA would be incorporated verbatim in the Minister’s determination.

**FIGURE 5.1**  
URANIUM MINES APPROVALS UNDER ARMA PROPOSAL



In summary, under ARMA, uranium mining approvals would be provided by the appropriate State/Territory Minister on the advice of the relevant State/Territory officials. In turn, these officials would take advice on the environmental and health aspects of the approval from the national body, ARMA. ARMA's advice would be replicated verbatim in the advice provided to the relevant State/Territory Minister (Figure 5.1) The Commonwealth Minister would not be involved, other than in approving the export of uranium from the new or extended mine.

ARMA would also be the day-to-day regulator of existing mines. This would involve monitoring the environmental and safety aspects of their operations, undertaking random audits and dealing with incidents. In the Alligator Rivers Region area, for example, ARMA would be responsible for monitoring the operations of the Ranger mine, in the same way as the Supervising Scientist does now.

As noted, at present, uranium mines are required to undertake significant community consultation during their operations, but the requirements differ from mine to mine and jurisdiction. The Ranger mine, because of its location next to a World Heritage Site, is subject to particular scrutiny. For instance, through the UIF Indigenous Engagement Working Group, the Commonwealth and NT Governments, NT Land Councils and the South Australian Native Title Representative Body members have developed high level principles for Indigenous engagement and are developing materials to assist Traditional Owners to make informed decisions about uranium exploration and mining on their land.

ARMA could develop, on a national basis, protocols for community consultation. These would take account of particular requirements for mines located in sensitive locations, such as the Ranger mine.

### *Benefits and costs of ARMA*

#### *Benefits of ARMA*

A number of advantages of ARMA have been identified:

- it would establish a single approvals process for uranium mines, leading to a streamlined process and reduced delays in an industry where Australia has a substantial opportunity
- ARMA would provide a ready-made expert body to undertake the regulatory process if uranium mining occurs in new jurisdictions
- by concentrating available Australian expertise in a single national body, ARMA will improve flexibility and hence productivity in regulation, will allow professional staff to benefit from belonging to a larger agency by exploiting synergies in expertise and will assist the agency to gain international recognition, making it easier to recruit first class staff
- the establishment of a high profile and transparent national body, under the direction of relevant Australian governments, should generate greater public confidence in the process by which uranium mining is regulated.

#### *Costs of ARMA*

There would be significant monetary costs involved in establishing and maintaining ARMA. ARMA requires the break-up of agencies at both the Commonwealth and State/Territory level which may involve significant disruption and, in net terms, more resources are likely to be required than are deployed on these tasks by Commonwealth and State/Territory governments at present. Additional resources would then probably need to be allocated to existing agencies,

which lost staff and budget. In addition, ARMA would involve significant additional work at the CoAG level and ongoing new work for the relevant ministerial council.

There would be a number of other, less tangible, costs of ARMA.

First, ARMA would establish a complex national mechanism directed towards the environmental regulation of just one resource industry, uranium. This is difficult to justify in a situation where other industries may exhibit more pressing environmental issues. In terms of the LNG industry, for example, governments have recently confronted very significant environmental issues on the Burrup Peninsula, and now are faced with a difficult issue in determining an appropriate location for the sustainable production of LNG from the gas fields in the Browse Basin.

Secondly, even though under ARMA the Commonwealth may no longer be able to be involved in approvals processes on the basis of the nuclear actions clause in the EPBC Act, it may still be involved if the proposed mine triggers one of the other clauses in the Act that allow its location to be classified as an area of national significance. This is standard for all other major projects. If so, the benefits of a streamlined process could well disappear.

Thirdly, ARMA may be criticised on the basis that, in the case of uranium mines, it would have the responsibility for environmental approvals and monitoring, not only in areas involving radiation, but across the board. This would appear to duplicate the functions of existing bodies, such as EPAs.

Finally, it is not clear that the establishment of a body such as ARMA would help to facilitate the extension of the uranium industry to other jurisdictions. Given the possible sensitivity of communities that have not played host to uranium mines before, a State government that moved to allow uranium mining may wish to provide strong assurances that it would take responsibility for best practice regulation of the industry.

#### Net costs/benefits of ARMA

The benefits of ARMA, as enumerated above, are relatively modest and would seem clearly to be outweighed by the costs.

An alternative approach would be to establish a national body focussing on uranium mining alone. This would be a clear case of using a sledgehammer to crack a nut. All the above costs would apply, while the benefits would be relatively modest.

## Option 2: Transferring powers back to the States and Territories

Under the division of powers in the Australian Constitution, the States own the uranium deposits that occur within their jurisdictions. It follows, according to one authority, that:

“the States clearly possess the constitutional authority to regulate all aspects of the nuclear fuel cycle occurring within their respective boundaries. This covers the exploration, mining, processing and sale of their own uranium deposits.”<sup>48</sup>

In principle, therefore, it would be possible for the Commonwealth to vacate the field in terms of regulating the uranium mining industry by renouncing the powers it has assumed.

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<sup>48</sup> Carney, Gerard, (2007), “Constitutional Framework for Regulation of the Australian Uranium Industry,” *Australian Resources and Energy Law Journal*, Vol 26, Number 3, December, page 237.

### *Benefits and costs of State responsibility*

The nominal benefit from this option is that it would provide industry with a single process in terms of mines approvals and regulation of their operations.

Given the way the Australian federation has developed, however, this is not a viable option in the twenty-first century. The Commonwealth is involved in every mining industry, not only by way of the EPBC Act, and the uranium industry is probably one of the least likely candidates to be subject to abrogation of this involvement. The main reason why the Commonwealth is not likely to adopt this course is that there is a particular community concern with this industry and, therefore, a desire to see the Commonwealth involved in its regulation. In addition, under Australia's treaty obligations, the Commonwealth is required to maintain a role in uranium industry regulation in the areas of security, international obligations, exports and safeguards.

### Option 3: Commonwealth assumption of State powers

Assuming that the Commonwealth has the constitutional power to take over uranium matters, then one option is Commonwealth assumption of State responsibilities in this area. But does the Commonwealth have the power? As suggested under Option 2 above, the States' powers in this area are clear under the Constitution.

The same authority as cited under Option 2 above, however, also asserts that:

“Since the *Work Choices* case, the Commonwealth can clearly rely on its power ... under s 51(xx) to regulate all corporations engaged in any stage of the nuclear fuel cycle, that is exploration, mining, processing, through to sale and export.”<sup>49</sup>

The option of a federal government takeover recognises that the Commonwealth is unlikely to vacate this area of regulation (or at least regulatory oversight). The Commonwealth is currently involved in regulatory oversight of key aspects of the process of producing and exporting uranium in Australia, some of them exclusively. A case could be made for Commonwealth regulation on the basis of the national government's international responsibilities in the area of safeguards.

The Commonwealth could readily take on a broader regulatory framework for the industry by expanding its involvement in uranium mining. One model could be expanding the functions of one of the departments currently most involved in uranium mining, such as DEWHA. As one possibility, this option could include expanding the Supervising Scientist's role and making the SSD the core of a new regulatory body with oversight of uranium mining in every Australian jurisdiction where it occurs.

Under this model the Commonwealth would be the regulator for the following areas:

- environmental and health safety issues in the approval of new uranium mines
- environmental and health safety issues in monitoring the operations of uranium mines (including incident reporting and management)
- establishing national protocols for community and stakeholder consultation in all areas of the nuclear fuel cycle
- security of uranium mines

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<sup>49</sup> *Ibid*, page 240.

- the transport of radioactive materials within Australia (although State governments may still provide this service)
- making recommendations to the Commonwealth Minister on export licences
- undertaking or commissioning the research necessary for properly discharging its responsibilities.

An important question is whether the Commonwealth could also intervene to allow the mining of uranium in States where it is currently proscribed.

### *Benefits and costs of Commonwealth responsibility*

#### Benefits

The nominal benefit from this option is that it would provide industry with a single process in terms of mines approvals and regulation of their operations.

Some industry stakeholders proposed a Commonwealth takeover and such an approach may be welcomed by the industry as a means of getting rid of overlaps and duplication. It would lead to a standard national approach to regulation. It would also present an opportunity for the Commonwealth to define a new regulatory framework for the industry through legislation.

There would also be some synergies for the Commonwealth in view of the fact that it regulates other areas of the nuclear fuel cycle through ARPANSA. In this regard, this proposal is probably simpler and less costly than ARMA because it would not involve the break-up of existing agencies as was suggested under that proposal. Commonwealth control of uranium mining, transport and exports could also allow it to address other inefficiencies more readily, such as transport.

In addition, treating uranium mining as a special case is consistent with the practice in other countries, even in those where the community is accustomed to seeing the operation of the whole nuclear fuel cycle. In Canada, for example, the federal government assumes the main responsibilities for regulating the uranium mining industry (although provincial governments also retain a role).

#### Costs

The main disadvantage of this approach is that it would duplicate functions at the Commonwealth level already being managed by the States. This may lead to inefficiency and increased costs to regulators. Given the current size of the industry with only three operating mines, economies of scale in setting up a Commonwealth body are unlikely to be achieved, particularly when those same skills will be required in each State mines department for regulating other non-uranium mines. This approach would further erode the States' powers in favour of greater centralism. In this sense, it offends against the current strategic approach of cooperative federalism.

As with ARMA this approach would also set uranium mining apart from other types of mining at a time when the industry is calling for uranium to be 'normalised'. Commonwealth control may also be questioned on the grounds that it reflects a very different treatment for uranium than other mining activities.



#### Net costs/benefits of Commonwealth control

If a comprehensive solution is required, with a single jurisdiction having the responsibility for regulating the environmental aspects of uranium mining, this would be the most efficient approach in terms of relative costs and benefits. Nevertheless, some would regard the costs as being significant in terms of overriding State responsibilities. In addition, this approach has very similar characteristics to ARMA in terms of being a sledgehammer to crack a nut. If the problems can be addressed satisfactorily by reforming the present system, this may well be preferable.

### 5.3 Reform within the current framework

In this section of the report, we put forward the alternative approach to a comprehensive solution and examine how the top ten reform issues (identified again at the beginning of this Chapter) might be addressed individually within the current framework.

#### Issue One: Access to land

As discussed in Section 3.4, until recently most of the Australian continent remained off limits for uranium miners, while in parts of it exploration for uranium remains banned. These bans represent a significant impediment not only to the Australian industry's development but also to international trade in a mineral that, globally at least, has been assigned a front line deployment in the battle against climate change. With the additional current concern about energy security, the bans in some Australian States will become increasingly difficult to justify over time while they may have an impact on Australia's reputation as a stable and reliable supplier of energy to an increasingly uncertain world market.

With official ALP policy having been changed in favour of uranium mining, the Commonwealth Government is in a strong position to request that relevant States remove their bans as a matter of priority.

In addition, stakeholders have raised concerns about difficulties in gaining access to defence land. This is a particular issue in South Australia. Access to defence land is surrounded by legitimate concerns of public safety and national security. Where the activity is considered safe in terms of OH&S requirements, however, and does not infringe on essential defence operations, exploration and mining should be permitted. In this context, it is important that exploration and mining companies are able to access clear and transparent guidelines which allow them to assess their ability to undertake exploration and mining on defence land before investing resources on such sites.

#### *Net costs/benefits*

The costs of removing state policy and legislative bans on uranium mining would be low unless compulsory acquisition of the resource is contemplated, in which case the costs may be contained to the transfer of royalty income from the Commonwealth. The benefits in terms of uranium mine development and the impact on Gross State Product and the community's economic welfare in relevant jurisdictions could be significant.

## Issue Two: Duplication and overlaps in environmental regulation

If we step back from a comprehensive solution to overlaps and duplication, the approaches available are:

- developing inter-jurisdictional protocols so that the States undertake environmental appraisals and monitoring on the Commonwealth's behalf
- removing the nuclear actions clause or uranium mining from being a specified action under the EPBC Act
- consolidate all Commonwealth environmental responsibilities relating to uranium mining and milling under a single body
- negotiating an agreement with the States and Territories whereby the SSD became the environmental regulator of all uranium mines.

These are discussed below.

### *Reform by means of developing inter-jurisdictional protocols*

As noted in Chapter 3, the application of the Commonwealth's EPBC Act generally results in a requirement for the majority of proposed uranium mines to undergo a full environmental assessment and approvals process. Although the process undertaken may be a joint one between jurisdictions, there is still generally the need for approvals to be granted at both State and Commonwealth levels.

Under the ARMA proposal, the EPBC Act would be amended so that the Commonwealth would no longer be directly involved in the environmental regulation of uranium mining under a separate nuclear actions clause. There are, however, other — less comprehensive — reform options, which would improve the efficiency of the Commonwealth's involvement in environmental assessments and approvals for uranium mines. One approach to reducing the effects of any overlap and duplication would be to establish protocols whereby the Commonwealth reduced its level of intervention by accrediting the relevant State government to undertake certain tasks on its behalf. This is currently occurring in a number of areas.

The Commonwealth could accredit relevant States to assess uranium mining developments on its behalf under the EPBC Act. This is already happening with South Australia, which has a strong record over twenty-five years in the regulation of uranium mining. However, this approach could be extended to other States as they move to allow uranium mining to take place within their jurisdictions.

As with South Australia, the development of a new MOU between each relevant State/Territory and the Commonwealth could better align the processes involved in parallel environmental assessments for uranium mines. In particular, this MOU would require jurisdictions to agree on a single set of:

- assessment guidelines i.e. the requirements for PER/EIS reports
- licence conditions attached to approvals, including reporting and consultative arrangements
- arrangements for mine rehabilitation.

The arrangements currently in place for the assessment of the proposed Olympic Dam expansion provide a template in this regard.

This option could therefore also involve consideration of a single, rather than parallel, EIS/PER process in certain circumstances, with the Commonwealth involved in giving final approval for the development, but basing its decision on assessment documentation prepared by the States. As with the option of accrediting the States to approve on the Commonwealth's behalf under the EPBC Act, this option would rely on the Commonwealth being of the view that the State involved was highly competent in the assessment of relevant issues.

Under this approach, agreement on formal timelines for responses to proponents from regulators could be enhanced with a view to providing more certainty around the expected time required for mine approval to be considered. In some contexts, deemed approved deadlines — where a submission from an opponent is deemed to be approved unless they are notified otherwise within a specified deadline — may be appropriate. Agreed timelines would need to be somewhat flexible to satisfy the requirement that proponents' submissions fully meet the requirements of regulators in all cases prior to approval being considered, and to allow for differences in circumstances from mine to mine. Nevertheless, the setting of some formal timeframes around the approvals process may provide helpful guidance to both proponents and regulators about the amount of time that assessment and approval can reasonably be required to take. Timelines for assessment and approvals are already contained in the EPBC Act. There would seem to be no reason why project proponents could not be provided with a firm timeline for approvals, including consideration by Ministers.

Accreditation could be extended to the uranium mines approvals process where it can be shown that a proposal warrants full assessment under the EPBC Act in one of the non-nuclear areas of national environmental significance. For instance, uranium mining within the Alligator Rivers Region is clearly a special case and warrants more active involvement by the Commonwealth because of the significant environmental and cultural heritage issues involved. Where a uranium mine triggered the EPBC Act under any of the six environmental significance clauses other than as a "nuclear action", the Commonwealth could accredit the State based EPA to undertake the assessment on its behalf. This is increasingly occurring in non-uranium mining operations.

While this approach would notionally reduce overlaps and duplication, however, ultimately approvals would still have to be granted by two layers of government. Uncertainty may remain in two areas:

- agreement between the jurisdictions on the 'rules of engagement', that is the precise nature of the requirements under the approvals process; and
- the fact that, even under a joint process, a Commonwealth or State Minister could re-open the process and require further work before providing approval.

#### *Removing uranium mining as a specified action in the EPBC Act*

A more fundamental approach to reform would be to amend the EPBC Act either to remove the nuclear actions clause altogether or to eliminate the mining and milling of uranium element from that clause.

We do not consider it likely that the Commonwealth Government would be willing to remove the nuclear actions clause from the EPBC Act. Where issues of high level radiation are involved, it can be argued, on the basis of community concern, that the Commonwealth has a legitimate interest in environmental regulation. For example, were a company to seek approval to establish a uranium enrichment facility in Australia, the Commonwealth would become deeply involved in the process. This involvement would doubtless extend to the environmental issues.

It seems likely that nuclear actions were separately identified in the EPBC Act as a cause for Commonwealth intervention on the basis of a concern about radiation. Yet Australia's uranium resources do not exhibit high levels of radiation. The process of milling uranium is also not hazardous in terms of radioactivity. Other mining activities, for example, the mining of heavy metals, have the potential to be more hazardous to the physical environment and to people and yet these are not covered specifically in the EPBC Act.

One way of implementing this option would be to amend the EPBC Act so as to establish a threshold of radioactivity that would need to be exceeded before a particular activity triggered the nuclear actions clause. This threshold could be defined on the basis of advice from ARPANSA.

A second approach would be to remove the acts of mining and milling of uranium from the nuclear actions clause in the EPBC Act. The basis for this is that no Australian uranium resource, nor the production of yellowcake, involves significant levels of radiation. This would mean that there was a single process for assessing environmental approvals for uranium mines, unless the EPBC Act was triggered for reasons other than the nuclear actions clause. It should be noted that, even if uranium mining ceased to be a specific event, that in the case of a major new mine the EPBC Act may well be triggered anyway.

The environmental risks of uranium mining are a function of the magnitude of impact on human health and the physical environment of any event, and the probability of the event occurring. In order to justify the removal of mining and milling as a 'nuclear action' from the EPBC Act, the Commonwealth would need to be convinced of the scientific basis for arguing that these risks are negligible. It may be appropriate for the Chief Scientist to undertake a study to validate the view that the actual level of risk involved with uranium mining and milling is consistent with that of other mining activities, such as copper, coal, gold and iron ore, that are not specifically identified in the EPBC Act.

#### *Enhanced role for the Supervising Scientist*

An alternative approach would be to acknowledge that the Commonwealth has an abiding interest in regulating uranium mines and for the States and the Northern Territory to cede the environmental approvals and/or monitoring function to the Commonwealth in the form of the SSD. The SSD has a strong record in regulating environmental and radiation aspects of the Ranger mine, which is in a tropical area. It may well be that the Supervising Scientist will be called upon to undertake some of the Commonwealth Government's environmental approvals/monitoring responsibilities should companies apply to develop uranium mines in other areas of the Territory. In order to undertake this function, the role of the SSD would need to be altered and its expertise broadened, but overall, from a whole of Australian government perspective, the costs of regulation should fall because there would only be a single process.

While the Commonwealth may be able formally to take over the States' powers in this area, as suggested under the third comprehensive option above, it would be preferable to negotiate such an outcome. The formal requirement for a State Minister (as well as a Commonwealth Minister) to sign off on an environmental approval for a uranium mine would remain, but the State Minister would make this determination on the advice of the Commonwealth entity, the SSD.

Jurisdictions with significant experience in regulating uranium mining may resist this approach. Other with less or no experience may be more interested in such a model. Skilled human resources are in short supply in this area, and it makes sense to concentrate the available expertise in as few agencies as possible.

A softer approach would be for the Commonwealth to consolidate all environmental responsibilities in relation to uranium mining and milling under the responsibility of the Minister for the Environment. In addition the services of DEWHA could be offered to the States and Territories where a uranium mining proposal triggered the EPBC Act. This would mean that the single assessment process was carried out by the Commonwealth on behalf of Ministers in both jurisdictions. Such an approach may also appeal to States/Territories where there may be a shortage of appropriately qualified resources.

#### *Net costs/benefits*

The first approach, that is the development of protocols for a single process, would lead to reduced costs nationally. If this approach were accompanied by strict timelines, the benefits to project proponents in terms of reduced delays in the approvals process could be material.

While there would be benefits to industry from removing uranium mining from being classified as a nuclear action, these may not necessarily be substantial because applications for developing a new or expanded mine could still trigger EPBC Act. The Commonwealth may consider there are significant intangible costs in such a course of action.

Developing a wider role for SSD would involve resource costs to the Commonwealth. Nationally, these should be offset by commensurate reduced costs in other jurisdictions.

### **Issue Three: Radiation protection regulation in South Australia**

As discussed in Section 3.3, the main issue arising from the regulatory system in South Australia is the overlapping responsibilities between PIRSA (MARP) and the RPD of the EPA (RMP and RWMP) in the management of environmental issues arising from uranium mining activities. The EPA is legislatively involved in these issues under the Radiation Protection and Control Act, while PIRSA is involved because of its requirement to be managing all of the risks associated with a particular mine.

It should be noted at the outset that both PIRSA and the EPA appear to have consistent objectives in regard to the development of uranium mining in South Australia. The difficulties appear to arise because the MARP is largely an outcomes-based ‘umbrella’ process designed to manage broad environmental issues, whereas the RMP/RWMP specifically addresses the particular radiological environmental and occupational radiation hazards presented by uranium mining.

In addition, the SA State Government has intentionally placed the administration of the RPC Act within the EPA to provide public assurance that the radiation aspects of uranium mining were being managed in an independent and transparent way.

Since this study was commissioned, the EPA and PIRSA have made considerable progress in aligning the functions of the MARP and the RMP/RWMP. While there are still areas of interaction to be clarified, the process that has been developed to apply to the recently expanded Beverley Project could form the basis of a successful regulatory arrangement. That is, the MARP provides a summary statement of outcomes to be achieved for a particular mining operation. The outcomes cover the regulatory responsibilities of PIRSA and other agencies, but in particular, can include statements of general environmental radiation outcomes. The Mining Code process is nationally agreed (under the National Directory for Radiation Protection) and based on international recommendations. The Mining Code under the RPC Act licence applies a

particular process by which, inter alia, the operator demonstrates those general outcomes are achieved, doses are ALARA, and Best Practicable Technology is employed.

### *Net costs/benefits*

The costs of reaching an accommodation between PIRSA and the EPA should be negligible. The benefits in terms of reduced compliance costs for industry would be material.

## Issue Four: Legislative framework in the NT

### *Rationalising the legislation*

The complexity of the NT regulatory framework for uranium mining has arisen for a number of reasons — including legacy issues and the environmental sensitivity of the region where the Ranger mine is located — that are not relevant to the industry in the NT more broadly. Apart perhaps from the unique area around Kakadu and noting that nearly half the land in the NT is under Indigenous ownership, there seems to be no obvious reason why the NT should be treated differently to any other State in terms of the principles underlying uranium mining legislation.

The way in which the laws could be streamlined depends on the model to be adopted. In any case, however, there seems little reason to retain the *Atomic Energy Act 1953*, since the original significant elements in it are either now obsolete or covered in subsequent legislation (eg the nuclear actions clause in the EPBC Act). However, this would require a new mining title for Ranger as the current authority to mine is under the *Atomic Energy Act 1953*. ERA has indicated that it does not wish to open the legal arrangements for Ranger due to the complexity and the time that would be required to normalise the arrangements. If a national approach, such as ARMA, were adopted, however, the regulatory function would be ceded to the national regulator with the determination now in the hands of the appropriate NT Minister. If a Commonwealth approach were adopted, these powers could remain with the Commonwealth. In both cases the special provisions in the Alligator River legislation could be subsumed in new laws to apply to uranium mining in the nation as a whole.

### *Ranger*

The overlaps and duplication implied by the interaction of Commonwealth and NT laws has not yet created significant difficulties for the reason that currently the only mine operating in the Territory, Ranger, falls clearly under the *Environment Protection (Alligator Rivers Region) Act 1978*, although of course a number of uranium mines have operated in the NT. The SSD has established an oversight regime that is accepted by ERA and the SSD has developed significant expertise in environmental issues relevant to the wet tropics. Because of the proximity of Ranger to Kakadu National Park, a World Heritage Area, there is general agreement that if the Alligator Rivers legislation did not exist, SSD or something like it would need to be invented. The reason for this is to satisfy local and international opinion so as to ensure that Kakadu's listing as a World Heritage Area can be preserved.

Difficulties with this regime may become apparent, however, if applications for uranium mining leases occur in other parts of the Territory. This may well be imminent.

### *Reform options*

The *Atomic Energy Act 1953* was conceived at the dawn of the nuclear age, in circumstances entirely different from today. In many respects it is obsolete and could be repealed if two issues could be addressed separately. These are:

- the ownership of the uranium resource in the Northern Territory
- the authorisation for Ranger, which is under section 41 of the *Atomic Energy Act 1953* and includes environmental requirements as a condition of the authority to mine.

Regarding the first point, in the early 1950s, when the *Atomic Energy Act 1953* was passed, only the US and the Soviet Union possessed nuclear weapons, although the UK would undertake a successful test of an atomic device on the Montebello Islands in 1955. Uranium was seen as a scarce and vitally important strategic resource. There would have been significant concern in both the US and the UK to safeguard supplies of Australian uranium. This was the reason why the Australian Government deemed it necessary to assert its ownership over the resource in the Northern Territory. In the 1970s, when the NT became self-governing and the ownership of all other minerals was transferred to the Territory, the Cold War was still a major fact of life and so Commonwealth ownership was maintained.

The situation now is entirely different. Uranium is plentiful, there are a significant number of enrichment plants around the world and both east and west have an excess supply of nuclear warheads. There would now seem to be no justification for treating NT uranium as being different from uranium in other Australian jurisdictions, nor for maintaining different ownership and royalty arrangements for uranium in the NT as for other minerals. There is a strong case for proposing that the ownership of uranium in the NT should, like other minerals, be vested in the Crown through the Northern Territory Government rather than the Commonwealth.

Turning to the second point, the Ranger mine is subject to a unique regulatory framework, comprised largely of the Ranger Government Agreement. Amending the regulatory framework to bring Ranger into line with current day regulatory arrangements would therefore remove a significant anomaly in the current system. While particular arrangements will still be required for some uranium mines, such as Ranger, operating in a highly fragile environment, these can be developed within a broader framework which applies to uranium mines in the Territory generally.

On the other hand, while it is accepted by both industry and government that the present regulatory arrangements for Ranger are not consistent with current best practice, there is no great appetite to reform them. It may be that the time and resources required to design a new regulatory architecture for the mine — presumably under the same framework that would apply for any new mine in the Northern Territory but with extra oversight and input from the SSD — would be substantial, and in the opinion of a number of key stakeholders, not justified by the improvement in regulatory outcomes likely to arise as a result.

Overall, however, there would be benefit in revisiting the regulatory structure for uranium mines in the NT in a situation where new applications for mining licences are expected in the near future. Should ERA apply to expand the Ranger mine, this would provide a good opportunity to redesign the Ranger Government Agreement. Both the Commonwealth and the NT Governments should be party to this negotiation, as should the mine operator, Traditional Owners and other relevant stakeholders.

### *Net costs/benefits*

There would be no significant net costs to the Commonwealth from transferring ownership of uranium to the NT because the royalty income is returned to the NT anyway. The resource costs of negotiating a new Ranger agreement would be material, but the benefits in terms of reduced compliance costs down the track should at least offset these.

## **Issue Five: Environmental conditions and export permits**

The export permissions for the EPIP Act projects include the environmental requirements determined under that Act. Nobody would argue that export controls are unnecessary. Their primary role is in relation to safeguards and Australia's treaty obligations to ensure that our uranium does not fall into the wrong hands. But since uranium mines are closely regulated in terms of their environmental performance, the environmental conditions attached to export licences appear to constitute an additional layer of unnecessary regulation. This is also somewhat anomalous since RET does not appear to be the obvious agency that should be selected to assess environmental performance.

Under the umbrella of two of the options for comprehensive reform — ARMA or a Commonwealth take over — bringing all of the 'EPIP' mines — Ranger as well as Beverley, Olympic Dam and Honeymoon — within the scope of the new regulatory framework would be an effective and efficient change to current arrangements. Either of these options would provide a single regulatory framework for all uranium mines across Australia, and it would be relatively straightforward to include the existing EPIP mines in the transition to the new system.

Unlike the EPIP Act, the EPBC Act has its own enforcement provisions and penalties and therefore it may not be necessary for export permits to be used as the enforcement tool for projects approved under the EPBC Act. This would resolve the issue as new mines will not be regulated under the EPIP Act. In addition, as existing mines apply for new licences to expand (eg Ranger and Olympic Dam), they will also come under the EPBC Act, as has recently occurred for the Beverley mine. It is quite possible that in a few years time only Honeymoon will be covered by this clause.

In the absence of comprehensive reform, the consultant is of the view that environmental conditions should be removed from export permits for mines assessed under the EPBC Act.

It is also appropriate to examine who has the responsibility for export permits. There is an argument that export controls should fall under the responsibility of DFAT, which can outsource the specialist advice it requires to other government agencies. ASNO could appropriately advise on safeguards (as it does now) and DEWHA on environmental compliance should that be necessary. In the light of this advice, the Ministers for Trade and Foreign Affairs could make the appropriate determination on the issue of an export licence.

On the other hand, until all environmental conditions are removed from export permissions, there is also an argument for retaining the status quo. In the meantime, RET could establish an MOU with DEWHA to manage environmental conditions attached to export permits on its behalf.

### *Net costs/benefits*

The costs of removing environmental conditions from export permits should be low. There will be benefits from reducing duplicative compliance.



## Issue Six: Access to Aboriginal land in the NT

The issue of the ability of Land Councils in the Northern Territory to accommodate the need for facilitation services in negotiations with traditional owners (TOs) is not, we consider a major bottleneck. A situation developed where there were delays in negotiations between project proponents and TOs but this was largely a result of a massive increase in exploration activity for uranium — the number of exploration permits increased from single digits to over one hundred in a matter of three years. This surge in interest has now levelled off.

In addition, it should be noted that any faults are by no means confined to one side. Uranium mining is a complex issue and Indigenous people, like other members of the Australian community, often have an imperfect understanding of the nature of the resource and harbour the same concerns as any average member of the public. Some project proponents fail to understand this and are inadequately prepared for negotiations with TOs when a meeting has been arranged. Land Council representatives observed that sometimes project proponents almost looked to them to help make their case, which is clearly not their role.

It is important to acknowledge that the major legislative changes to ALRA made in 2006, commenced operation in July 2007 and require further time to operate before they are reviewed. There is a statutory review scheduled for 2012, which would appropriately be based on evidence from a five year period of the new system's operations.

The time limits for Land Councils to respond to applications have been extended and changes have been made to the way Land Councils are resourced based on workload. However, it appears delays are still occurring due to issues such as adequate resourcing of Land Councils, a skills shortage within the Land Councils to meet the demand of project proponents and some project proponents being inexperienced at negotiating with TOs.

Project proponents should ensure they are thoroughly prepared for negotiations with TOs and are in a position to answer difficult questions. It is understood that the Australian Uranium Association appreciates this issue and has prepared an information pack that business can draw on when undertaking these negotiations. It is also important that Land Councils continue to work with industry to better inform them on the most effective ways of communicating with TOs.

### *Net costs/benefits*

There will be benefits in terms of reduced delays in the process.

## Issue Seven: Incident reporting

Incident reporting in the context of uranium mining serves two purposes. First, and most importantly, it alerts relevant authorities to potential hazardous events at mines. Secondly, it serves to communicate information about activities at uranium mines to interested parties and the community more broadly, and in this way provides reassurance about the safety (or otherwise) of those activities.

A best practice regulatory approach to incident reporting should focus very strongly on addressing the first of these objectives — that is on the actual hazard involved — and address the second objective — information provision — with a clear focus on the first. The information provided by incident reporting should therefore be closely linked to the potential hazard indicated by the incident, in order to properly inform both relevant authorities, and other

interested parties, about the extent and nature of the risk involved. In this way, appropriate response procedures can be put in place to manage the potential hazard, and the community more broadly can be properly informed about the nature and extent of the risks occurring as a result of uranium mining activities.

As a minimum, the criteria for a new system would include:

- a clear focus on the outcome (i.e. actual hazard) generated by incidents at uranium mines
- national consistency, with minimal allowance for local conditions at particular mines
- an event in which it is determined that the situation is not covered by the design accident conditions
- an event that involves multiple failures caused either by common mode failures or system interactions
- human errors that lead to a significant degradation of the facility safety and is liable to produce a major accident
- events originating from operating conditions such as equipment failure, maintenance, modification or surveillance activities showing evidence of potential safety degradation.

If the assumption that any level of radiation dose, no matter how low, may be a risk to human health is accepted, then incident reporting requirements must capture any unplanned exposure to radiation, regardless of severity.

However, the need to capture any unplanned exposure to radiation can be satisfied through the application of a risk-based approach to incident reporting linked to cascaded reporting requirements that escalate based on the significance of the incident. This would allow for basic reporting to be maintained by mine operators for incidents deemed low risk with more comprehensive reporting to the regulator on significant incidents.

Further, the current legislative framework for OH&S encourages a risk-based approach to incident reporting and investigation through the use of terminology such as “appropriate” and “practicable” and the cascaded approach to incident investigations practiced by regulators and industry. This ‘best practice’ approach facilitates high-level investigation of incidents deemed lower risk, while reserving complex and comprehensive investigations that require the investment of considerable time and resources for significant incidents.

Taking a risk-based approach to incident reporting would move beyond what is currently accepted practice in Australia, with the benefit of addressing the need for incident data and trend analysis as well as reducing the compliance burden and administration. It is strongly recommended that the approach remain consistent with Australian Standard for Risk Management (see below). Incident reporting requirements exist in a number of OH&S Commonwealth and State Acts and Regulations. Prudence dictates that changes to the existing approach for uranium mining examine existing approaches to ensure as high a degree of consistency as possible. The present changing OH&S environment and the National Review into Model OH&S Laws’ plans for harmonisation of OH&S laws creates a timely opportunity to revisit and improve the intent of incident reporting in general and consider what reporting requirements will support and drive better practice in Australia over the next five to ten years.

Once a risk-based approach to incident reporting is established, the community more broadly can be properly informed about the nature and extent of the risks occurring as a result of uranium mining activities.

A number of stakeholders noted that the current incident reporting system could be improved if companies were able to report incidents online. Consideration should be given to including the provision for companies to report and communicate relevant incident information via company websites, as is currently done in a number of Australian contexts including the energy and maritime safety sectors.

In the event of a significant incident, online reporting would potentially assist the mine operator to immediately inform the regulator while still providing a more detailed follow up incident report.

### *Establishing clear definitions for incident reporting*

The incident reporting process should establish clear parameters and scales for the consequence and likelihood of various risks specific to uranium mining. Further, the resulting risk rating should be defined, tolerance levels determined and linked to reporting requirements and timeframes. Such an approach should be designed to ensure that recurrence of a low severity incident could still trigger a full incident report to the regulator.

In establishing a regulatory framework for incident reporting for uranium mining, a national definition for the term ‘incident’ needs to be adopted and communicated. The definition should be developed in consultation with industry and aligned with existing Australian and International Standards:

- according to AS/NZS4801:2001, an incident is any unplanned event resulting in, or having a potential for injury, ill health, damage or other loss
- according to OSH AS18001:2007, an incident is a work related event during which injury, ill health, or fatality actually occurs, or injury, ill health, or fatality could have occurred.

The definitions above consider the actual harm as well as the potential to harm, again highlighting the importance of a risk management approach to reporting incidents. Incident reporting could likewise be clearly defined as ‘the reporting of any unplanned event resulting in harm or having the potential to harm’.

### *A risk management approach*

A risk management approach to incident reporting would require the introduction of a methodology to evaluate the severity of an incident as well as the likelihood of recurrence, based on available historical data. The methodology applied should be supported with clear reporting guidelines that incorporate a risk management framework (defined risk categories and ratings) that remain consistent with the Australian Standard as follows:

- according to AS/NZS 4360:2004 an organisation should consider the potential consequences of risk events in terms of their severity if they should occur and the likelihood of them occurring
- the estimated level of risk should be compared with pre-established criteria and ranked to identify management priorities
- the type of scale used to carry out this measurement is largely dependent upon the nature and range of the consequence and the level of knowledge and variability of the likelihood. It is essential that having chosen suitable types of scales, the limitations and freedoms offered by each type be fully understood.

The consultants consider that a national Code of Practice for incident reporting based on actual risks should be developed and based on International Commission for Radiological Protection standards for Protection (ICRP levels of exposure are detailed above). On-line reporting should be permitted, with immediate verbal reporting required for a serious incident. To enhance consistency, the guidelines for risk-based incident reporting should be supported with assessment templates, model incident registers and reporting forms.

### *Monitoring compliance*

A compliance monitoring regime for incident reporting requirements should occur at a number of levels. Key elements of the regime for consideration include:

- the maintenance of a complete incident register by the mine operator, including the assessment of incident significance based on severity and likelihood
- internal audit of controls around incident reporting within the mine operator
- the annual report of incidents to the regulator
- the independent audit of the incident register, determinations and subsequent responses by the regulator.

### *Costs and benefits*

Since the required data are all readily available, the costs of developing another Code of Practice would be relatively low. The compliance benefits from having a risk-based, nationally applicable approach to incident reporting should more than offset these costs.

## **Issue Eight: Monitoring, reporting and stakeholder engagement**

As discussed in detail in Chapter 3, industry stakeholders generally consider that the current framework for monitoring, reporting and stakeholder consultation for uranium mining is relatively onerous, and not always reflective of the actual risks involved in activities undertaken at uranium mines in Australia.

As with all aspects of the ideal framework for uranium mining, a balance needs to be struck between the need to alleviate community concerns about uranium, and the requirement to address regulatory risks with the least distorting regulatory tool available, and in a way which reflects accurately the actual risk involved. It is reasonable to assume that this balance was struck in favour of the need to manage community expectations about the nature of regulation that would apply to uranium mining. That is, the focus was on addressing community perceptions of risk, rather than solely on the nature of the hazard posed by the mining activity. As a result, the current system is very stringent and ‘hands on’: a large number of very detailed reports are required to be produced frequently, a wide range of meetings need to be held regularly to discuss the contents of these reports, and the on-site external monitoring of activities and impacts at uranium mines is very comprehensive and in-depth.

Over time however, regulators have gained more experience, the industry itself has had a chance to prove the safety and efficacy of its management techniques, and the community is slowly becoming more aware and accepting of the uranium mining industry as, on the whole, a relatively safe one. In this context, it is fair to assume that the stringency of the arrangements initially put in place is potentially greater than that which would be ideally implemented with

the benefit of hindsight and experience. On this basis, there is a case for reviewing a number of the more stringent requirements as part of this review.

We consider that a national approach should be adopted on the basis of a new Code of Conduct being published. This should stipulate that, for all uranium projects with the exception of Ranger:

- Unless there are particular concerns where stakeholders require more frequent meetings, stakeholder meetings should be held bi-annually for each mine. Beyond this, however, mine operators should continue to have considerable scope in negotiating particular arrangements with stakeholders that best meet the needs of all parties.
- In line with the rationalisation of stakeholder consultations, reporting requirements for each mine should be reviewed with a view to implementing an ‘audit only’ approach, with minimal monitoring and external collection of data from mine sites. Reports could then — where appropriate — focus on the reporting of exceptions, rather than on the provision of full information about all mine site activities. Full audits requiring the provision of more comprehensive information could be undertaken periodically (say every 3 years) in order to supplement the on-going reports.

For the Alligator River Region:

- ARRTC should be redefined as a committee charged with providing research and scientific support to the SSD. As such, the requirement for the mine operator to attend should be removed, although attendance would be allowed on a voluntary basis.

On an in-principle basis, there is also a case for amending the role of the SSD in collecting data from the Ranger site to one which focused more on an active audit role and less on hands-on data collection and monitoring, possibly with provision for a major audit periodically to ease public concerns. While the present arrangements involve additional cost, however, the consultants are not persuaded that they should be changed. The Supervising Scientist advised that the present activities contribute to sustaining SSD’s research capacity. They also appear to be valued by the local community, including Indigenous stakeholders, and may therefore be important in the context of Ranger’s unique operating environment. Finally, we understand that the Ranger mine operator, while recognising that the present approach would not be ideal if starting with a clean sheet of paper, can live with the current arrangements on the basis that they are working effectively.

Where particular monitoring, reporting or consultative arrangements are required in licence conditions or by other legislative means, these would need to be amended to reflect the revised arrangements.

### *Net costs/benefits*

Rationalising monitoring and reporting should lead to reduced compliance costs for both industry and government.

## Issue Nine: Transport

### *Too many regulators?*

As discussed in Chapter 3, a recent review of Australia's transport regulation undertaken by the IAEA was concerned that there were eleven authorities involved. To reiterate the IAEA's concerns:

For other countries having federal organizations (e.g. Canada, Germany and the United States of America) only one authority issues certificates of approval for packages. The IRRS team considers that the regulatory regime is not structured and resourced in a manner commensurate with the potential magnitude and nature of the hazard to be controlled (GS-R-1 2.1 in part) in particular if nuclear and uranium activities are expanded. Eleven authorities cannot reach the minimum staff to be efficient and competent in the field of transport of radioactive material.<sup>50</sup>

Although each jurisdiction has implemented ARPANSA's national code of practice, this is regulated by a number of 'competent authorities', one in each jurisdiction. One option is the approach recommended by the IAEA review, namely that:

"ARPANSA should review the current system of approvals for transport to consider the possibility of having one competent authority for the transport of radioactive material, with memoranda of understanding or protocols with other competent authorities for transport of dangerous goods."

Another approach would be to have a single regulator, either a national regulator established under the National Transport Commission or a Commonwealth regulator, which could be ASNO.

### *Access to transport infrastructure*

According to the industry, there are very few Australian ports that allow uranium exports to be processed through them and loaded on ships. Others, including Port Botany, have established formal or informal bans on uranium exports. In addition, some local councils designate themselves as 'nuclear free zones' and do not allow the transport of uranium through their jurisdiction. Clearly, if companies are unable to access a range of carriers and shipping routes, this can add to the costs of the uranium industry. Such bans also represent a barrier to international trade in resources and cannot do anything to support Australia's valuable reputation as a reliable supplier of energy.

There are three points to be made here:

- first, there is no legal basis for any local council to prohibit the transport of radioactive materials within its borders on the basis of some claim to be 'nuclear free'
- secondly, it is difficult to see how a ban on a shipment of uranium by a port authority or a State government could survive a constitutional challenge on the basis of freedom of interstate trade
- thirdly, it is not clear on what basis a stevedoring company can refuse to load a legal consignment of goods.

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<sup>50</sup> International Atomic Energy Authority (2007), *Integrated Regulatory Review Service for ARPANSA*, page 90.

The best way to resolve this issue is for the States and Territories to adopt uniformly the ARPANSA Code of Practice for the *Safe Transport of Radioactive Material 2008 edition* into their relevant legislation governing the transport of radioactive materials, including uranium.

Failing this, a test case may be a useful second best, whereby a uranium exporter seeks approval to ship a consignment of yellowcake through the port of their choice. If this is unsuccessful, intervention by the Commonwealth and Local Government would be the first step, with a legal challenge as the last (but perhaps necessary) resort.

#### *Net costs/benefits*

There will be minimal costs for State and Territory governments in adopting the ARPANSA Code of Practice.

Opening up all Australian ports for uranium exporters should lead to significant benefits to industry over time. While there may be costs to stevedoring companies in terms of establishing appropriate facilities, these should be recovered from business over time.

### Issue Ten: Safeguards

In Australia, maintaining safeguards against nuclear proliferation is the responsibility of ASNO and export controls are the main policy instrument. The issue is raised here not because there is any obvious concern about ASNO's role or the policy generally but because some industry stakeholders are concerned about the implications for the uranium industry if any of its product fell into the wrong hands. More than the possibility of another nuclear accident like Chernobyl, more than any concerns about waste, experienced industry representatives believe that this is the greatest potential threat to the future growth of Australia's uranium industry.

Because the nuclear industry is entering a new phase of rapid development worldwide and hence, uranium mining is likely to expand, the issue of proliferation is likely to become more intense. While Australia has an excellent record in this area and maintains a highly competent presence in the form of ASNO, there may be more that could be done in the context of a rapidly expanding industry. The main dangers lie overseas, after the yellowcake has left our shores, where ASNO has no jurisdiction.

At present, Australia has a Permanent Representative to the International Atomic Energy Agency (IAEA) in Vienna, who is also the Ambassador to Austria. Creating the new position of Ambassador for Nuclear Non-Proliferation would increase the Australian Government's presence in this area and enhance its capacity to influence the work of the IAEA in terms of safeguards and non-proliferation. Such a new position would also accord well with the Australian Prime Minister's recent initiative on nuclear weapons.

#### *Net costs/benefits*

The costs of creating a new Ambassadorial position would be reduced if it were located in Canberra. The potential benefits are largely intangible, but would reflect a greater influence for Australia on the international stage in terms of nuclear non-proliferation.

# Appendix A: Stakeholders consulted

| Organisation  |
|---|
| Aboriginal Legal Rights Movement (SA)                               |
| Australian Conservation Foundation                                  |
| ARPANSA   |
| BHP Billiton  |
| Cameco  |
| DEWHA   |
| DRDPIFR (NT)  |
| DRET  |
| DWLBC   |
| ERA   |
| Heathgate Resources   |
| Northern Land Council   |
| NT Dept. Health & Community Services                                |
| NT Minerals Council   |
| NT Dept. of Natural Resources,<br>Environment and The Arts (NRETAS) |
| Nupower   |
| PIRSA   |
| Qld Resources Council   |
| RPD EPA SA  |
| SA Conservation Council   |
| SA Department of Trade and Economic<br>Development                  |
| Toro Energy Limited   |
| Uranium Equities  |
| Uranium One Australia   |



# Appendix B: Bachmann recommendations

The following recording and reporting conditions are to be applied:<sup>51</sup>

## A. General requirements

### Report

- Any defect, due to design or malfunction, discovered in the mine, mill, plant, equipment or working procedure, that is likely to lead to an urgent change in plant, equipment or work procedure in order to keep radiation doses as low as reasonably achievable.
- Release, or loss of control of radioactive process materials, liquids or wastes, leading to the accidental exposure of a worker to radioactive materials through inhalation, ingestion or significant contact.
- Unplanned dispersal to the atmosphere of any radioactive process materials through failure of a section of the plant or by an abnormal event (eg. fire or explosion).

### Record

- The results of an investigation which reveals any defect, due to design or malfunction, discovered in the mine, mill, plant, equipment or working procedure, that is likely to cause a significant increase in radiation exposure, together with the causes and resulting actions taken.

## B. Undisturbed environment

### Report

- Unexpected degradation or defect in the ISL trunklines, Tailings Retention System (TRS) pipelines and structures, pipelines or structures associated with Evaporation Ponds or Storage Ponds that, unless remedied, is likely to lead to a reportable release of radioactive process materials, liquids or wastes.
- Any unplanned release of radioactive process materials, liquids or wastes to the undisturbed environment.
- ISL mining fluid underground excursions.
- Release of radioactive process materials, liquids or wastes which enter or threaten to enter an ephemeral watercourse.

### Record

- Any unplanned release to the surface of more than 10 m<sup>3</sup> of natural groundwater.

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<sup>51</sup> Source: Bachmann 2002, *Report of Independent review of reporting for the SA Uranium mining industry*.

## C. ISL wellfields

### Report

- Any unplanned release of more than 10 m<sup>3</sup> radioactive liquids.

### Record

- Unplanned release to the surface of more than 10 m<sup>3</sup> natural groundwater.
- Any unplanned release of more than 1 m<sup>3</sup> of radioactive liquids.
- Unexpected degradation or defect in ISL lateral lines that, unless remedied, is likely to lead to a reportable release of radioactive liquids.

## D Process plant

### Report

- Any release of uranium concentrate outside secondary containment.
- Release of more than 50 m<sup>3</sup> of radioactive process materials, liquids or wastes beyond secondary containment, but contained within the engineered controls of the plant perimeter.
- Unplanned release of more than 2 m<sup>3</sup> uranium concentrate within secondary containment.

### Record

- Unplanned release of radioactive process materials, liquids or wastes, of more than 50 m<sup>3</sup> into secondary containment or result in filling of more than 50% of secondary containment volume.
- Release of more than 10 m<sup>3</sup> of radioactive process materials, liquids or wastes beyond secondary containment, but contained within the engineered controls of the plant perimeter.
- Unplanned release of more than 0.2 m<sup>3</sup> of uranium concentrate within secondary containment.

## D. TRS, corridors and pipelines

### Report

- Unplanned release of more than 50 m<sup>3</sup> radioactive process materials, liquids or wastes within TRS banded areas and pipeline corridors.
- Unexpected degradation or defect in the TRS or evidence of leakage from Evaporation Ponds or Storage Ponds that, unless remedied, is likely to lead to a reportable release of radioactive process materials, liquids or wastes.

### Record

- Unplanned release of more than 10 m<sup>3</sup> radioactive process materials, liquids or wastes within TRS banded areas and pipeline corridors.



## Contact us

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