uraniumcouncil

Uranium Oxide Concentrate (UOC) Transport Strategy 2013

Executive Summary

This Transport Strategy outlines transport challenges in the Australian uranium industry, and contains recommendations for industry and government to pursue. Effective collaboration on these recommendations has a strong potential to increase efficiency in the sector. Challenges include:

1. Addressing unfounded fears about radiation and the hazards associated with an accident involving uranium that persists in the community. The risks associated with a 'spill' of uranium are often far lower than perceived by the community.
2. Ensuring consistent and appropriate transport policies across jurisdictions. Consistent and streamlined policies based on an accurate assessment of the risk posed by uranium are essential to efficient transport.
3. As all uranium produced in Australia is exported (for peaceful power generation overseas), access to domestic container port infrastructure is critical to ensure access to efficient routes to market. Exports of uranium are currently restricted to the ports of Adelaide and Darwin.
4. Access to international trans-shipment ports is a key priority, and the Australian Government is working to improve transport efficiency for companies at the international level.

These issues are outlined in detail below.

Introduction

Access to reliable and efficient transport for shipments of Australian uranium oxide concentrate (UOC) is essential as all uranium mined in Australia is exported solely for peaceful purposes. There are four operating uranium mines in Australia, with several new projects and expansions expected to come online over the next decade, including in jurisdictions which have previously prohibited uranium mining. In 2012-13, Australia exported 8,390 tonnes uranium oxide (t U_3O_8) at a value of A$822 million[1]; these numbers are expected to increase as new or expanded mines come online. Having access to reliable transport systems is an important investment consideration for emerging projects, particularly if Australia is to meet growing global demand for uranium, predicted to increase by 6 per cent annually to a total of 97,500 t U_3O_8 through to 2018[2].

Natural uranium cannot be used directly in most power stations and must undergo further processing and refining in order to become useable fuel. For most reactor types, this involves

[1] Department of Industry
[2] *Resources and Energy Quarterly – September Quarter 2013*, Bureau of Resources and Energy Economics: http://bree.gov.au/documents/publications/req/REQ-2013-09.pdf

conversion, enrichment and fuel fabrication processes. In 2012-13 Australia sold 33.3% of its uranium to customers in North America, 31.2% to Asia and 35.5% to Europe. However, around 90 per cent of Australian uranium is initially exported to North America and Europe for conversion and enrichment prior to final delivery to customers. Small quantities are exported directly to China and Russia, which have their own conversion facilities. The limited number of commercial converters globally means that exports from Australia are often reliant on access to the US and Europe. The global nature of the nuclear fuel cycle results in the need for complex logistical transport arrangements between each stage of the process.

Australian UOC exports are high value, low volume consignments, which means they are especially vulnerable to changes in commercial carrier routing decisions, as well as changes to radioactive material (RAM) transit regulations at ports of call.[3] Australian UOC exports to North America and Europe currently rely entirely on a single shipping route, serviced by two shipping carriers calling into the Port of Adelaide. There is no redundancy in this system and it is contingent upon continued cooperation by all carriers, ports, shipping terminals and local authorities along the route. In addition to the extra costs, time delays in delivery and complexity of management resulting from the limited international transport options, the current shipping arrangements are such that there is a significant risk of exports being suspended at short notice.

Inefficient transport options can have a significant impact on the economics of mines, particularly small producers. Should one or more carriers or ports along the single remaining shipping route to Europe and North America cease accepting RAM or change their shipping routes, schedules, or trans-shipment hubs for any commercial reason, Australian producers would be forced to charter vessels to meet their contractual deliveries, incurring significant expense. It is also uneconomic from an overall cost-risk basis. Additionally, it can take some months for a producer to process and drum the required volume of product for a charter consignment, putting the timeliness and reliability of delivery of contracts into question.

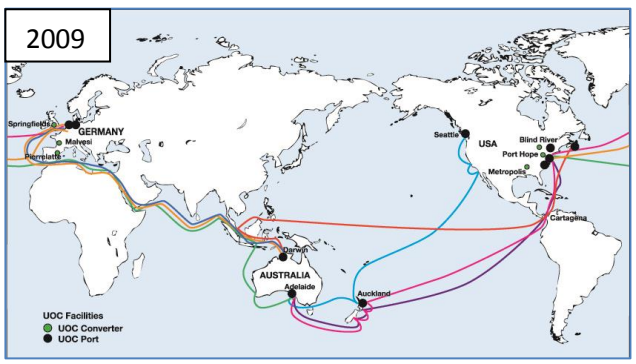
The Australian uranium industry considers lack of diversity of UOC transport options a significant risk to the industry, and continues to work to alleviate these risks associated with limited routes. In an effort to further harmonise the transport of UOC in Australia, established producers are working alongside new and emerging ventures to ensure standardisation of transport practices nationally. Formal networks such as the Uranium Council's Transport Working Group provide a forum for cooperation in ensuring best practice in shipping container procurement and quality assurance, shipping documentation standardisation (e.g. Safety Data Sheets), and packaging and securing methods. Industry best-practice references such as the *Guide to Safe Transport of Uranium Oxide Concentrate* have been developed by the Uranium Council to ensure standardised processes across the industry. Additionally, industry representatives maintain good working relationships with shipping companies and international port authorities to encourage the continued acceptance of Australian UOC and to identify potential new routes and new carriers for their product.

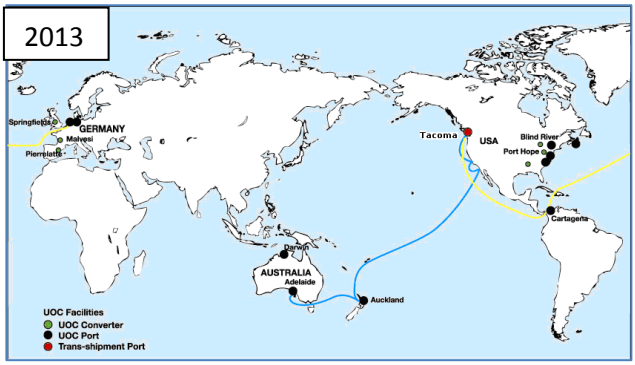
[3] UOC is considered a 'Class 7 Dangerous Good' i.e. it is radioactive material.

Current Arrangements

The transport of RAM is carried out safely and securely through all jurisdictions across Australia by road, rail and air on a routine daily basis. This includes material such as radioisotopes critical for medical applications, as well as UOC, which has been exported from Australia for the past 30 years without incident.

The Port of Adelaide in South Australia (SA) and the Port of Darwin in the Northern Territory (NT) are the only two ports in Australia currently available for the export of UOC. However, other classes of dangerous goods posing a higher risk, in addition to more highly radioactive material, pass through most of Australia's other major ports on a regular basis. UOC remains stable under all conditions of storage, handling and transport, and does not





pose an explosive risk. Standing within one metre of a container of UOC will result in roughly the same additional radiation exposure above standard background levels as a four hour high altitude commercial flight.

Australian UOC exports to North America and Europe currently rely entirely on two shipping carriers, servicing one route, calling into the Port of Adelaide. Since 2009, the available shipping routes for UOC from Australia to converters in North America and Europe has substantially contracted from seven to only one single route today.

This route involves transit in New Zealand, then discharging in one of two available North American west coast ports (Oakland or Tacoma) and then on-carriage by land for delivery to converters on the east of North America. Deliveries to Europe are shipped to Oakland or Tacoma for trans-shipment before travelling back down the US west coast, through the Panama Canal and then into Europe. Some shipments to Europe require land transport from the US west coast to meet Europe-bound vessels on the US east coast.

Industry information provided as part of the development of this Strategy shows that Australian UOC shipments usually take around 77 days to reach France, 43 days to reach Canada, and 40 days to reach the USA. This compares to 25, 22, and 23 days respectively for shipments from a uranium mine in Namibia. It is also estimated by industry that if all Australian ports were available for UOC export, transit times from Australia could be reduced by 13 days to Canada, and 10 days to the USA. Additionally, transit times to China could be reduced by 23 days. These more efficient routes could also be accessed weekly, as opposed to the current fortnightly accessibility. From a cost perspective, it is estimated

reduced transit times to North America could save US$5,000 per container on freight charges alone. This does not reflect savings associated with an increased ability to access regular transport and reduce stockpiles. It is estimated by one major Australian producer that a quarter of its annual production is in transit at any one time, largely due to transport delays.

The key factors identified in this Strategy causing the severe lack of redundancy in transport routes for Australian UOC include:

- *Limited access to ports*: Adelaide and Darwin are the only ports in Australia exporting UOC, severely limiting the international shipping routes that can be accessed by Australian producers.
- *Real and perceived public sensitivity to uranium:* Political sensitivity to real and perceived community concerns regarding UOC transport continues to limit action to broaden the UOC transport options available to Australian producers.
- *Limited international trans-shipment points*: The current export system for UOC is reliant on limited trans-shipment options along the available route. There are some ports open to trans-shipment which are not on the currently accessible route to the US or Europe (e.g. Singapore).
- *Limited carriers*: Many international shipping carriers are unwilling to accept UOC shipments, or impose onerous licensing requirements above and beyond recognised best practice international standards, due to negative perceptions regarding radiation. Carriage of UOC can also reduce the flexibility of calling into certain ports for logistical reasons.
- *Risk-based restrictions on some routes*: Some key routes are not being granted safeguards clearance for carrying uranium. For example, clearances are not currently being granted to UOC shipments through the Gulf of Aden, which eliminates access to all available westbound routes from Australia.

Analysis of options to increase transport efficiency

The options identified to increase transport efficiency and flexibility are interrelated and action on a single issue will not resolve the industry's transport problems. It is important to consider all possibilities both for the immediate benefits they provide, but also in light of the potential for greater gains to be made when combined with other options. This Transport Strategy focuses on pursuing the options that are practical and achievable in the short term that may prove strategically valuable in securing or influencing other shipping options at a later stage.

Quantify and address negative public perceptions

Political sensitivity regarding negative public perception of uranium issues remains a significant barrier to efficient and harmonized UOC transport in Australia. Unfounded fears about radiation and the dangers of an accident involving UOC persist in the community, albeit at lower levels than was once the case. The existence of 'Nuclear Free Zones' in some council areas and the activities of anti-nuclear Non-Government Organisations have some

potential to act to strengthen the perception that transport of UOC is a concern for constituents. This is despite the consistently safe record of UOC transport in Australia and globally, and the hazards and dangers of UOC being minimal. This is particularly the case in relation to, and when compared against, many other dangerous goods and hazardous materials. Regulators and emergency personnel are well equipped to handle any incident that may arise.

Conversely, the transport of RAM, including radioisotopes, is being carried out safely and securely across all parts of Australia (including through Nuclear Free Zones without any community concern) by road, rail and air on a routine daily basis. There are thousands of RAM consignments shipped in Australia each year, part of the estimated 20 million RAM consignments shipped globally each year.

UOC is regularly transported on an ongoing basis into the Port of Adelaide and exported without issue. This has continued despite the City of Adelaide declaring itself a Nuclear Free Zone in 1995. This is clear evidence that UOC transport can be successfully integrated even into communities ambivalent about nuclear power. General apprehension about community backlash, therefore, should not constrain action on UOC transport across Australian jurisdictions. It is important to work with key stakeholders to allay genuine concerns among communities that may have specific anxieties or be misinformed about the real issues and facts surrounding the transport of UOC. There is an opportunity to build on the excellent work already being undertaken by the Australian Uranium Association regarding fear and perception.

In order to identify and address real community concern and build acceptance of increased UOC transport in Australia, a community engagement strategy should be available for the purpose of targeting issues that are of genuine concern to particular communities, for example those that may be living along newly-established UOC transport routes. National cooperation on material explaining the dangers posed by UOC (or lack thereof), and an associated communication strategy could be developed by the Uranium Council. It would be beneficial to seek endorsement of this work by state and territory radiation safety authorities. The Uranium Council could draw upon the expertise of well-established uranium mining states, and this material could be used by Standing Council on Energy and Resources (SCER) Ministers to address constituents' questions and concerns. Development of a comprehensive and nationally applicable communication strategy by experts will ensure it is framed objectively, and is likely to be more acceptable to the public than a document prepared solely by industry.

Use of an engagement and information strategy may be important in emerging uranium jurisdictions, which need to engage communities near proposed uranium mine sites and transport routes. It is important to recognise that for many Australians, uranium mining and transportation is not a salient issue and that action to address UOC transport restrictions does not represent significant political risk.

Recommendation #1:
That the Uranium Council develops an information and communication strategy to address specific identified concerns regarding UOC transport, directed towards communities on or near UOC transport routes. Endorsement of the content will be sought from state, territory and Commonwealth radiation safety authorities.

Increase access to domestic ports

Of the options identified, pursuing increased access to Australia's ports and related infrastructure potentially offers both practical benefits in the short term, and an increased prospect of subsequently overcoming other identified barriers.

A Uranium Council audit of the relevant Australian state and territory legislation covering the transport of uranium is at **Appendix A**. No Australian jurisdiction appears to legislatively preclude the transport of uranium, and technical transport requirements are in line with internationally agreed standards. Further, industry engagement with transport and port operators, and state regulatory authorities, has indicated a general willingness to accept UOC shipments. Transport regulations have already been largely standardised throughout Australia, and UOC does not present any hazards or handling challenges beyond the technical and regulatory expertise and requirements already present and currently operating in each jurisdiction. This is reiterated in the Queensland Government Uranium Implementation Committee's 2013 report, which stated that 'if the Queensland Government does receive a request to export uranium through a Queensland port… existing regulation for the transport and export of Class 7 Dangerous Goods (Radioactive Material) [should] be applied.'

Australian UOC producers rely entirely on access to container ports well-serviced by international shipping lines. Lack of access to Australia's largest and best-serviced container ports is seen as a major impediment to efficient, timely and reliable export. Should access be extended to include additional ports, efficient routes to market are available on a regularly scheduled basis, particularly from the east coast, given the large volume of other containerised cargo exported daily from these locations.

In addition to the issue of opening further domestic ports to shipments of uranium, is the parallel need to establish overland transport routes. Overland transport is carried out routinely between existing mines and the ports of Adelaide and Darwin. Transport is governed by the relevant state or territory legislation, all of which adopt ARPANSA's *Code of Practice for the Safe Transport of Radioactive Material*, based on the International Atomic Energy Agency's *Regulations for the Safe Transport of Radioactive Material*. There is a lack of containerised coastal shipping options in Australia between major ports. As such, the most efficient export system is overland transport to the nearest major port for export.

Domestic acceptance of UOC transport will also strengthen Australia's international efforts to negotiate and encourage wider acceptance of the carriage, transit and trans-shipment of UOC internationally. Action to open up domestic ports will demonstrate that Australia considers UOC to be a safe commodity. When negotiating access to foreign ports, officials point to the fact that Australia will not allow it to pass through many of their jurisdictions.

For both logistical and perception reasons, it will be valuable for jurisdictions to work together to streamline the treatment of UOC exports across Australia. Existing mechanisms such as the SCER are in place for effective Ministerial collaboration on issues such as UOC transport. The importance of streamlining transport regulations across Australia has been recognised more broadly through the Council of Australian Governments National Transport Commission (COAG – NTC) process. The perception of political risk may also be reduced by working on a harmonised response to the problem instead of taking a piecemeal policy approach.

> ***Recommendation #2:***
> ***That each State and Territory jurisdiction engage with the Uranium Council with the objective of working collectively through the SCER process to streamline and harmonise their UOC transport policies and practices, based on an accurate assessment of the risk to the environment and community posed by UOC.***

> ***Recommendation #3:***
> ***That the Uranium Council Transport Strategy be presented to SCER for discussion, and that it begins discussions on the capacity of jurisdictions to open ports for the transport of UOC.***

Seek increased access at key international hubs

Australia faces an increasingly competitive international market for UOC, and domestic transport difficulties compound wider international transport impediments faced by exporters. Key international transit and trans-shipment hubs are not always receptive to requests to allow UOC transit and/or trans-shipment handling. Similarly to domestic concerns, this is often due to misunderstanding of risks associated with the product. Access to major international shipping routes is immediately impacted if there is unwillingness by one port along a shipping route not to accept UOC, or allow UOC transit but not trans-shipment (where the product is transferred from one vessel coming into port onto another). For Australian producers, who must ship their product long distances to converters and typically transit multiple ports along a shipping route, this can be a significant impediment to establishing new routes.

The currently utilised export route for Australian UOC transits New Zealand, with containers unable to be trans-shipped due to New Zealand Government policy. At present, containers from Adelaide must transit New Zealand and cannot be trans-shipped until the vessel reaches Tacoma, USA. Engagement with countries along shipping routes to allow trans-shipment, such as New Zealand, may increase flexibility, and enable access to a greater variety of routes to North America and Europe.

There are several large trans-shipment hubs with excellent facilities suitable for the trans-shipment of UOC, which are currently unavailable for trans-shipment. Previous international engagement has resulted in concerns being raised over stevedore handling ability, and perception issues. Engagement by Government and industry to provide greater opportunities

for UOC transit and/or trans-shipment along the entire supply route(s) may be beneficial in accessing vessels and routes currently unavailable for transport of Australian UOC.

> ***Recommendation #4:***
> ***That the Australian Government, with industry, continues to investigate new options for international transit and trans-shipment.***

Encourage greater understanding of RAM among carriers

Carriers can charge a premium for containerised UOC exports. However, the low numbers of containers of UOC exported each year (around 400 containers in 2011) and the restricted port access for RAM, severely impacts on the willingness of carriers to accept consignments and makes UOC exports highly susceptible to carriers' financial decisions, as seen during the recent global financial crisis. Exacerbating this problem are the continued restrictions on carrying RAM imposed by several major shipping carriers servicing critical routes, including those to Europe and the US, due to factors including negative perceptions regarding radiation, concerns about the cost of training for those who handle RAM, and diversity of port regulations. These restrictions persist despite the safe transport of RAM, including UOC, worldwide for over 50 years, and the existence of international regulations governing the safe transport of RAM, developed by the International Atomic Energy Agency (IAEA).

While industry continues to engage with shipping lines to encourage increased carriage of RAM, these efforts should be supported by international engagement by the Commonwealth to inform carrier decision making and assist in the reduction of instances of delay and denial of shipments of RAM. This includes the Department of Industry's participation in the International Steering Committee on Denial of Shipment (ISC), established in 2006 by the IAEA. The mandate of the ISC is to develop a comprehensive Action Plan to facilitate the global transportation of RAM. This mandate is supported by a global network of regional coordinators, ensuring a global response to issues of denial.

The provision of easily accessible technical information and the wider distribution of safety-related literature such as the Uranium Council *Guide to the Safe Transport of Uranium Oxide Concentrate* may also assist in reducing concerns of carriers, international trans-shipment hubs and port authorities.

An active role by Australia in international forums, including defining the future work of the ISC to include UOC specifically, will ensure that the work of the IAEA on RAM transport complements the work being done by Australia domestically and on a bilateral level.

> ***Recommendation #5:***
> ***That the Government and industry continue international engagement, including through the IAEA International Steering Committee on Denial of Shipment, to encourage greater understanding and acceptance of the carriage, transit and trans-shipment of RAM internationally.***

Reassess the security situation in the Gulf of Aden

The Australian Safeguards and Non-Proliferation Office (ASNO) approves the security arrangements for vessels and shipping routes carrying UOC to international destinations.

In 2009, a decision was made not to approve the transit of Australian UOC through the Gulf of Aden. This carefully considered decision was based on the security threat posed by piracy in the region at that time.

According to the International Maritime Bureau, piracy in Somalia and the Gulf of Aden reduced roughly 70 per cent between 2011 and 2012.[4] Given this reduction, an increased awareness by carriers, and the time passed since the previous risk assessment, it is timely to fully review and assess developments in the region to determine whether this restriction is still necessary. This will ensure that shipments can be resumed at such time as the threat reduces. While westbound routes are limited since the contraction of services as a result of the global financial crisis, the option to ship via the Gulf of Aden, if safe, could provide some commercially attractive routes and much-needed redundancy should other factors limit access to eastbound routes.

> ***Recommendation #6:***
> ***That the Australian Government reassesses the security threat posed to shipments of UOC in the Gulf of Aden, and in that assessment consider the requirement for regular assessments to ensure that access is commensurate to the risks.***

Summary / Conclusion

Building efficient, reliable and diversified transport options for the Australian uranium industry depends upon a wide range of interdependent factors, in both the domestic and international spheres. In order to initiate progress, the Strategy recommends focusing efforts first and foremost on gaining agreement of jurisdictions within the SCER framework on appropriate and effective action to be taken to address domestic challenges.

SCER consideration of this Strategy and action on the relevant key industry challenges identified by the Uranium Council, including reducing domestic transport impediments, will have direct benefits as noted, but may also provide traction on other issues not directly within Australian State and Territory control. Progress in the area of port access strengthens Australia's negotiating advantage and credibility on the international stage when seeking access to new trans-shipment points. There is also an opportunity to demonstrate the world's best practice approach taken in Australia towards safe transport and handling of UOC.

To ensure that Australia remains a responsible, reliable and competitive supplier of uranium, efficient transport is critical. The international perception of Australia as a reliable export market and competitive supplier is key to the future success of a growing industry.

[4] http://www.icc-ccs.org/news/836-piracy-falls-in-2012-but-seas-off-east-and-west-africa-remain-dangerous-says-imb

Key Findings

Recommendation	Responsibility	Timeframe
Recommendation #1: That the Uranium Council develops an information and communication strategy to address specific identified concerns regarding UOC transport, directed towards communities on or near UOC transport routes. Endorsement of the content will be sought from state, territory and Commonwealth radiation safety authorities.	• Uranium Council.	Agenda item discussed and agreed to at the June 2013 Uranium Council meeting. Agreed to progress throughout 2014.
Recommendation #2: That each State and Territory jurisdiction engage with the Uranium Council with the objective of working collectively through the SCER process to streamline and harmonise their UOC transport policies and practices, based on an accurate assessment of the risk to the environment and community posed by UOC.	• State Governments to progress recommendations through SCER. • Progress monitored through Uranium Council.	Transport Strategy endorsed by Uranium Council in June 2013, to be brought to SCER as soon as practicable. Discussion on ports to progress throughout 2014.
Recommendation #3: That the Uranium Council Transport Strategy be presented to SCER for consideration, and that it begins discussions on the capacity of each jurisdiction to open ports for the transport of UOC.	• Strategy to be provided to SCER for consideration. • Uranium Council to follow up progress with states.	Transport Strategy to be presented to SCER in December 2013.

Recommendation #4: That the Australian Government, with industry, continues to investigate new options for international transit and trans-shipment.	• Australian Government (Department of Industry & Department of Foreign Affairs and Trade (DFAT).	Negotiations currently in progress.
Recommendation #5: That the Government and industry continue international engagement, including through the IAEA International Steering Committee on Denial of Shipment, to encourage greater understanding and acceptance of the carriage, transit and trans-shipment of RAM internationally.	• Australian Government (Department of Industry, DFAT) & Uranium Council.	Ongoing.
Recommendation #6: That the Australian Government reassesses the security threat posed to shipments of UOC in the Gulf of Aden, and in that assessment consider the requirement for regular assessments to ensure that access is commensurate to the risks.	• Australian Government (DFAT).	Annually.

State and Territory Policy and Regulations

South Australia

Uranium mining is well established in South Australia (SA), with three of Australia's four uranium mines located there. Uranium mines in SA are licensed under the *Radiation Protection and Control Act 1982* to mine or mill radioactive ores.

The transport of UOC in SA is routinely carried out, both by road and rail, and exports are made from the Port of Adelaide. The transport of uranium or any other RAM in SA must be undertaken in accordance with the *Radiation Protection and Control (Transport of Radioactive Substances) Regulations 2003* (SA Regulations) under the *Radiation Protection and Control Act 1982*. The SA Regulations adopt the 2001 Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) Code, with minor additions.

Responsibility for the safe transport of RAM is divided between:

- the consignor or person who owns the RAM that is to be transported;
- the carrier or person owning the vehicle on which the material is to be carried; and,
- the driver (and store keeper), i.e. the employees of the carrier who drive the vehicles and in any other way handle the package.

The specific responsibilities of these groups are set out in the ARPANSA Code and the SA Regulations. There is also a general responsibility that no person may interfere with a package without the permission of the consignor or carrier. Aside from compliance with the ARPANSA Code which includes the requirement for a transport plan there is no requirement for a State licence to transport UOC within SA. It is expected that the 2003 SA Regulations will be shortly updated to apply the 2008 version of the ARPANSA Code.

Northern Territory

Uranium mining has been carried out at Ranger uranium mine in the Northern Territory (NT) for over thirty years. The transport of UOC in the NT is routinely carried out, both by road and rail and out of the Port of Darwin. Transport of UOC is regulated through the *Radioactive Ores and Concentrates (Packaging and Transport) Act* (ROC Act), which stipulates that a licence is required to transport UOC. A licence may prescribe conditions as deemed necessary for the transport or storage of RAM, including 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 also details obligations in the event of a delay or accident in the transport of RAM, or damage to a package or container containing RAM.

The 2008 ARPANSA Code has been adopted in the NT regulations.

Western Australia

In 2008 the Western Australian (WA) Government overturned a long-standing ban on uranium mining. Uranium mining and processing, certain exploration activities and the transport of uranium ore are jointly subject to the *Radiation Safety Act 1975*, the *Mines Safety and Inspection Act*, and the *Radiation Safety (Transport of Radioactive Substances) Regulations 2002*. WA legislation has adopted the ARPANSA Code.

Section 25 of the *Radiation Safety Act 1975* requires all persons who transport prescribed radioactive substances to have an appropriate licence from the Radiological Council or be working under the direction and supervision of a licensee. Persons who hold a relevant licence for the use of radioactive substances may also transport those substances.

There is no legislative restriction on which WA ports can be used to export RAM. However, Fremantle, the location of WA's main container facilities, declared a 'nuclear free zone' in October 2000. The policy specifically states that 'no uranium, nuclear waste or other material connected with the nuclear power industry may be stored or transported through the Municipality.' It is expected that once mines start production, UOC produced in WA will be exported through Adelaide and Darwin. WA Government policy is not to export UOC through ports in residential areas. This effectively precludes the use of Fremantle for UOC export.

The WA Department of Mines and Petroleum is engaging with the community to address issues of concern regarding the transport of UOC.

New South Wales

Uranium mining is prohibited in New South Wales (NSW) through the *Uranium Mining and Nuclear Facilities (Prohibitions) Act 1986*. In early 2012 the NSW Government announced its policy with regard to uranium exploration would be changed. Previously, mining and prospecting for uranium was prohibited. In April 2012 the *Mining Legislation Amendment (Uranium Exploration) Act 2012* received assent. The Act makes changes to existing NSW legislation, permitting the exploration for uranium. It is anticipated that this move will allow for a comprehensive assessment of NSW's uranium resources. Mining of uranium is still prohibited. This Act does not mention the transport of uranium through NSW.

In NSW the transport of RAM is regulated under the *Radiation Control Regulation 2003* (NSW Regulation) under the *Radiation Control Act 1990* (NSW Act). Since UOC can be considered a 'radioactive material' under the *Radiation Control Act 1990* there would be licensing requirements under s6 of the NSW Act for people who use, possess and transport UOC.

The transport of UOC is not precluded in the regulatory regime, provided the appropriate licences are obtained. However, there may be political considerations to bear in mind. The previous Labor Government policy did not approve of transporting UOC through NSW. There is no indication that this policy has changed.

Victoria

The Regulation Review specifically identified Victoria as a jurisdiction in which the transport of uranium was not allowed within state boundaries.

Exploration and mining of uranium is prohibited in Victoria under the *Nuclear Activities (Prohibitions) Act 1983*. This Act also prohibits *inter alia*, the possession, use, transport or storage of nuclear material including UOC, unless in possession of a Management or Use licence issued under the *Radiation Act*. Provided the required licences are obtained then it appears to be possible to transport UOC in Victoria from a regulatory standpoint.

Management or Use licences are issued by the Department of Health under the *Radiation Act 2005*. The issuing of Management Licences to transport is a graded system depending on the type of material being transported. UOC would be considered a Low Specific Activity LSA-1 material, alongside radioactive mineral sands. It is noted that each part of the transport chain would require a licence, and there are training requirements for all personnel involved. Applicants for a licence need to demonstrate that they have the systems necessary to enable them to comply with the 2008 ARPANSA Code.

It is understood that one company possesses a Management Licence to Transport which would cover the transport of UOC (although it was not sought with the intent of UOC transport).

Queensland

Queensland permits uranium exploration and announced in October 2012 that the Government would support the recommencement of uranium mining in the state.

Once minerals leave the boundaries of land the subject of a mining lease, mineral development licence or exploration permit, they are regulated by the *Radiation Safety Act 1999* and the *Radiation Safety Regulation 1999*, administered by the Queensland Department of Health. The Regulation adopts the ARPANSA Code 2008. The *Radiation Safety Act 1999* establishes a licensing regime to regulate the possession and transport of RAM. Under section 14 of the *Radiation Safety Act 1999*, a licence must be held by persons who wish to transport radioactive substances.

For transport by road, under s14 of the Act, only an individual, the person in charge of the vehicle, may hold a licence to transport RAM – there is no provision for a company to obtain the licence. To obtain a licence, applicants must successfully complete a training course approved by Queensland Health on the transport of RAM.

For transport other than by road (i.e. air, sea or rail) however, under s15 of the Act, a company or individual is permitted to hold a licence authorising the transport of radioactive substances. Corporate licensees must provide appropriate training to staff in relation to the transport of radioactive substances. The requirements for a transport plan are currently being clarified.

Local Council Restrictions

A number of councils around Australia have introduced Nuclear Free Zones (NFZ). NFZs appear to be largely political statements of preferences. Regardless, the declaration of Adelaide as a NFZ in 1995 is evidence of successfully integrating UOC

transport with such statements. UOC is regularly transported into the Port of Adelaide and exported without issue. It is important to note that Adelaide's declaration of the Nuclear Free Zone specifically states that '*Nuclear Free Zones cannot be directly implemented by a Local Government Authority… The declaration of Nuclear Free Zone by Council and the erection of signs have limited legal significance; however, they are an important public statement of the view of the Council and its community'*.

TABLE ONE: State and Territory Policy and Regulations

Jurisdiction	Uranium Mining	ARPANSA Transport Code	Transport RAM/UOC allowed	Licensing	Other requirements	Other comments
South Australia	allowed	Yes - 2001	Yes *Radiation Protection and Control (Transport of Radioactive Substances) Regulations 2003* under the *Radiation Protection and Control Act 1982*.	No Transport Licence required	Regulations require compliance with TS-R-1 (as described in ARPANSA Transport Code 2001) – includes a requirement for transport plans	Port Adelaide stevedores have required ASNO permits
Northern Territory	allowed	Yes - 2008	Yes *Radioactive Ores and Concentrates (Packaging and Transport) Act* *Radioactive Ores and Concentrates (Packaging and Transport) Regulations*	Transport licence required under the *Radioactive Ores and Concentrates (Packaging and Transport) Act*.		Port Darwin stevedores have required ASNO permits
Western Australia	allowed	Yes - 2001	Yes *Radiation Safety Act 1975* *Radiation Safety (Transport of Radioactive Substances) Regulations 2002*	Yes – Transport licence required under the *Radiation Safety Act 1975*	Regulations require compliance with the ARPANSA Transport Code 2001 and IAEA TS-R-1.	An update to the 2008 ARPANSA Transport Code 2008 has been drafted and is expected to be passed in the very near future; it was on hold prior to the 2013 state elections.
New South Wales	No mining (legislation) Exploration permitted	Yes – as in force from time to time	Yes – licence to use/possess is required *Radiation Control Act* s25 *Radiation Control Regulation* incorporates Transport Code	Yes – UOC a 'RAM' under *Radiation Control Act* => licence to use/posses required No transport licence required – *Dangerous Goods (Road and Rail Transport) Regulations 2009* do not apply to RAM	Regulations require compliance with the Australian Radiation Protection and Nuclear Safety Agency document entitled *Code of Practice for the Safe Transport of RAM*, as in force from time to time.	Sydney Port Dangerous Goods Management Guidelines outline requirements for UOC.
Victoria	No mining or exploration (legislation)	Yes	Theoretically Yes - No transport of UOC allowed under s9(1)(d) *Nuclear Activities (Prohibition) Act* –	Yes – Transport Management licence required – these are issued under *s12 Radiation Act*		

			unless you have a Transport Management licence s9(1)(g)&(h)			
Queensland	allowed	Yes - 2008	Yes (*Radiation Safety Act*) UOC not mentioned explicitly	Yes – Transport licence required to transport RAM under s14 and s15 *Radiation Safety Act 1999*		