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Open-Ended Technical Meeting of Technical and Legal Experts for Sharing of Information as to States' Implementation of the Code of Conduct on the Safety and Security of Radioactive Sources and its supplementary Guidance on the Import and Export of Radioactive Sources
IAEA Headquarters, Vienna, Austria
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Paper submitted by Australia

EXECUTIVE SUMMARY

Australia is a federation of six states, which, together with two major self-governing territories and the federal government comprise 9 separate legal jurisdictions. Australia has a land mass of 7,686,859 square kilometres. Australia no longer manufactures any radioactive sources but continues to use radioactive sources for a broad range of medical, industrial, research and mining purposes. Australia gave a non-binding to work towards implementing the guidance in the Code of Conduct on the Safety and Security of Radioactive Sources (consistent with the terms of GC(47)/Res/7.B) in May, 2004 and notified the Director General of its intention to act in accordance with the IAEA Guidance on the Import and Export of Radioactive Sources (consistent with the terms of GC(48)/Res/10.D) in November 2004.

Australia has longstanding regulatory arrangements to ensure the safety of radioactive sources. These regulatory arrangements are consistent with the IAEA Safety Standards Series. Since 2001 Australia has focussed on efforts to enhance regulatory and other controls over radioactive sources consistent with the level of concern the material poses. In summary, Australia has taken the following actions:

- published a national report on the control and regulation of security sensitive radioactive materials agreed by the Council of Australian Governments in April 2007;
- publication of a *Code of Practice for the Security of Radioactive Sources* and the development of associated practice specific guidance and templates;
- Australian jurisdictions have introduced requirements set out in the Code of Practice into local laws dealing with the safety and security of radioactive sources;
- undertaking an extensive and ongoing education and awareness program with industry and government involved in all aspects of the supply chain;
- established a national register of category 1 and 2 radioactive sources to better monitor the national inventory and the movement of sources;
- Australia has enhanced facilities and services to search for missing sources, secure found sources and to intervene in the event of a malicious act involving a radioactive source;
- Australia has made regulations and implemented administrative measures to control the export of category 1 and 2 radioactive sources in accordance with the IAEA Guidance on the Import and Export of Radioactive Sources;
- commenced a program of cooperation with other regulatory bodies in the South-east Asian region in order to share knowledge, know-how and experiences.

1. INFRASTRUCTURE FOR REGULATORY CONTROL

1.1 Implementation:

Acquisition, use, storage, transfer and disposal of radioactive material in all states or territories within Australia are regulated by specialist units within either a Department of Health (4 States and 2 Territories) or an Environmental Protection Authority (or similar) (2 States). The same activities at the national level are regulated by ARPANSA under the *Australian Radiation Protection and Nuclear Safety Act 1998* (the ARPANS Act) and its Regulations.

The legislation across Australia is not uniform due, in the main, to the age of the enabling legislation and assorted policy issues. It is evident from a recent study that, amongst other things, the levels of

penalty for illegal possession and use of radioactive material should be made uniform across Australia.

One of the functions of the CEO of ARPANSA is 'to promote uniformity of radiation protection and nuclear safety policy and practices' The Radiation Health Committee (RHC), established under the ARPANS Act also has functions in support of national uniformity. The Committee includes the CEO of ARPANSA and representatives from each State and Territory radiation control authority.

In August 1999, a Ministerial meeting endorsed the development of a *National Directory for Radiation Protection* as a means of achieving uniformity in radiation protection practices between jurisdictions. The meeting agreed that upon consideration and approval of the provisions of the Directory by the Radiation Health Committee, the regulatory elements shall be adopted in each jurisdiction as soon as possible, using the existing regulatory framework of each jurisdiction.

The first version of the National Directory was accepted by Ministers on 29 July 2004 and by adopting the National Directory each jurisdiction then has an agreed set of terms and definitions to be embedded into legislation, thus providing a mechanism for uniform adoption of an approach to radioactive source security.

In 2007, ARPANSA published the *Code of Practice for the Security of Radioactive Sources*. The Code of Practice was developed in consultation with the RHC, law enforcement and national security policy making bodies. The Code of Practice was endorsed for inclusion into the Directory in 2009, however, by that time most jurisdictions had already introduced the security requirements of the code into local regulatory arrangements. In several instances, jurisdictions have elected to revise the radiation legislation and regulations to promote an integrated approach to regulating the safety and security of radioactive sources.

The *Code of Practice for the Security of Radioactive Sources* applies to the use, storage and transportation of category 1 to 3 radioactive sources and sets a security outcome to be achieved for each category by a mix of physical and procedural security measures identified using a risk informed, performance based approach. These security measures are set in a scalable manner based on the threat level and are formulated into a source security plan or source transport security plan which requires approval from the regulatory body. The Code of Practice also contains provisions regarding trustworthiness checks, regulatory requirements for the transfer or disposal of a category 1 to 3 source and incident reporting and recordkeeping.

1.2 Lessons learned:

Early and robust industry engagement about the risk environment, the development of practical regulatory guidance to implement the security requirements and the development of cost effective, practical security solutions.

Sustained and targeted outreach to industry and regulators to support the development of an effective security culture and compliance with regulatory obligations.

In drafting security requirements, governments need to be well informed of the manner in which radioactive sources are dealt with and, where necessary, revise requirements when circumstances change or new circumstances emerge.

2. FACILITIES AND SERVICES AVAILABLE TO MANAGE SOURCES

2.1 Implementation:

2.1.1 Searching For Missing Sources And Securing Found Sources

In the event of a missing or uncontrolled radioactive source, current processes require the authorised person to notify the regulatory authority. In the case of theft, the local police service would also be notified. The timescales and procedure for this notification have been agreed between jurisdictions however, the systems available for locating and securing missing sources vary across Australia. The

Code of Practice requires a security breach (including theft, loss, damage, unauthorised access or transfer) to be immediately reported to the local police service and to the regulatory body.

Portable vehicle mounted radiation search systems are available at the national level and commercial aerial radiometric survey systems are available and can be configured for searching for missing sources.

2.1.2 Intervention In The Event Of An Accident Or Malicious Act Involving A Radioactive Source

The responsibility for emergency response and the implementation of protective measures following an accident or the malicious use of radioactive material rests with the jurisdiction in which the incident occurred in the first instance. In the event of the jurisdiction's resources being overwhelmed or the incident being identified as terrorism related, a set of federal government plans are initiated as appropriate including the National Counter Terrorism Plan. First responders have received significant training and equipment to deal with a range of CBR incidents including those involving radiation. The radiation protection framework to assist in the decision for interventions is provided in an ARPANSA document published in December 2004: *Recommendations on Interventions in Emergency Situations Involving Radiation Exposure, RPS7*).

2.1.3 Personal Dosimetry And Environmental Monitoring; And The Calibration Of Radiation Monitoring Equipment

There are a number of suppliers of personal dosimetry for external radiation exposure and calibration services for radiation monitoring equipment within Australia. The capacity for environmental monitoring exists both for routine monitoring of facilities using radioactive materials and for radiation emergency response. Australia is developing trained environmental monitoring teams, with equipment and procedures that are consistent with IAEA methods and requirements.

2.2 Lessons learned:

Clarification of roles and responsibilities amongst organizations likely to be involved in searching for or intervening in a malicious act prior to an incident is critical to effective interaction and performance during an incident.

3. TRAINING: REGULATORY BODY, LAW ENFORCEMENT AGENCIES AND EMERGENCY SERVICES

3.1 Implementation:

Staff within Australian regulatory bodies typically have appropriate radiation protection and scientific training to ensure the safe use of radioactive materials. In implementing the Code of Practice, some regulatory bodies have or will recruit security experts, in addition, ARPANSA delivers national training courses to licence holders, law enforcement and regulatory bodies on protective security fundamentals and requirements for implementing the Code of Practice.

As part of national programmes for CBR emergency response enhancement, law enforcement agencies, fire hazmat and ambulance service personnel have developed and delivered training on radiation emergency response in conjunction with organizations offering radiation protection training. The training varies between jurisdictions but is coordinated nationally.

3.2 Lessons learned:

Preparation of emergency personnel for radiation incident is a significant task, both due to the number of personnel and the technical nature of the training. The familiarisation with radiation and radiation protection needs to occur across all levels of the response agencies, including the decision makers.

In Australia's case, the regulatory bodies with principal responsibility for security of radioactive sources are safety focused organisations. Appropriate skills and knowledge training is essential to effective implementation and monitoring of a source security regulatory framework.

4. NATIONAL REGISTER OF SOURCES

4.1 Implementation:

ARPANSA, working with the nation's 9 radiation regulatory bodies, has established an electronic national register of Category 1 and 2 radioactive sources. The register contains technical information relating to each source, its container and the applicable licence holder. The register will receive automated daily updates of data from jurisdictions. The register along with information communicated to/from the register is secured in an appropriate manner.

Australia is exploring the possibility of extending the national register to include Category 3 sources on the basis of experience in export controls and the nature of the material included in this Category.

4.2 Lessons learned:

Ensuring the consistency and quality of data in the national register is paramount. This can pose a challenge for countries with multiple jurisdictions.

Education of licence holders about revised reporting requirements is important to ensuring the timeliness and accuracy of data stored in the national register.

5. NATIONAL STRATEGIES: GAINING OR REGAINING CONTROL OVER SOURCES

5.1 Implementation:

Australia has a mature radiation regulation system with the infrastructure in place to facilitate the safe use of radioactive material. In order to address concerns that the current systems for the reporting of uncontrolled sources currently operate within the local jurisdiction, informal national reporting arrangements have been formalised into a national reporting system, in parallel with the development of the national register of high activity sources. This national reporting system has formalised links with law enforcement agencies and other security agencies.

Orphan or uncontrolled radioactive sources are uncommon but occasional instances have arisen in the past. Following the recommendations in the COAG report, ARPANSA has commenced an awareness and education outreach program to promote compliance with the Code of Practice and the local regulatory requirements for the safety and security of radioactive sources. The Australian Government has identified a site for a proposed national radioactive waste management facility.

5.2 Lessons learned:

The national register of sources together with the national reporting system has been a significant aid in tackling instances where radioactive sources have become uncontrolled. Further work will be required to enhance the integration between response capabilities at the different levels of government and the flow of information between different types of agencies at different levels of government.

6. MANAGING END OF LIFE CYCLE SOURCES

6.1 Implementation:

The Australian Nuclear Science and Technology Organisation (ANSTO) is able to receive radioactive sources that it manufactured from licence holders. ANSTO is not able to store radioactive sources of other origins unless related to terrorism. Disused sources have been returned to overseas manufacturers or sent to disposal sites in accordance with relevant legal requirements.

Some States and Territories do allow individuals to re-seal used radioactive sources that are then useful to industry. This recycling of unwanted radioactive sources reduces the amount of radioactive waste stored in Australia. The manufacture and recycling of radioactive sources is controlled in Australia under the existing radiation safety legislation which typically requires a specific licence allowing such activity. Each regulatory body in Australia operates a facility capable of receiving orphaned sources.

6.2 Lessons learned:

Only one State has an ultimate disposal option for radioactive sources; all other States and Territories, and the Australian Government, rely on some form of storage. Dis-used radioactive material is stored in a number of locations across Australia. The condition of these stores and their security measures varies widely. The Australian Government is taking the necessary steps to establish a national radioactive waste management facility.

7. IMPORT AND EXPORT OF SOURCES

7.1 Implementation:

Radiation protection legislation in all jurisdictions prohibits a person from receiving and possessing radioactive material without prior authorisation from the regulatory body. In Australia an authorisation from the regulatory body does not include the right to import or export radioactive material. An importer must obtain approval from the Australian Government under customs laws to import the goods prior to importation.

On 31 December 2005, Australia amended its customs laws to require a person wishing to export Category 1 and 2 radioactive sources. Australia administers the control consistent with the guidance contained in the IAEA's Guidance on the Import and Export of Sources.

Australia is currently reviewing instances where radioactive sources have entered the country without the knowledge of the recipient or the regulatory body (for example in a consignment of machinery parts) including instances where the items have been landed temporarily.

7.2 Lessons learned:

As early as practicable, a country should identify the countries that it trades sources and initiate a dialogue in order to minimise administrative or technical misunderstandings or oversights in the implementation of the guidance in the Code and Guidance.

Acting in accordance with the IAEA Guidance on the Import and Export of Radioactive Sources can have an impact on businesses exporting radioactive sources, particularly in terms of the time required to assess applications for permission to export. This impact could be reduced through an education and awareness outreach program by the regulatory body.