

**Third Open-ended Meeting of Technical and Legal Experts for Sharing Information on 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**

**Abu Dhabi, United Arab Emirates**

**27 to 31 October 2013**

**National Report 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 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 commitment 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 and security of radioactive sources. These regulatory arrangements are consistent with the IAEA Safety Standards and the IAEA's Nuclear Security Series Fundamentals and Recommendations publications as they relate to radioactive sources.

Since 2001 Australia has focused upon 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;
- published a *Code of Practice for the Security of Radioactive Sources* (the Code) and developed associated practice specific guidance and templates;
- introduced requirements set out in the Code into Australian jurisdictional laws and arrangements related to the safety and security of radioactive sources;
- undertaken 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;
- 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;
- 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;
- published the *Regulatory Guide: Licensing of Radioactive Waste Storage and Disposal Facilities* in March 2013, which, inter alia, sets out the federal regulatory requirements and best-practice guidance for safely and securely storing and disposing of radioactive sources declared as waste; and
- commenced a program of cooperation with other regulatory bodies in the South-east Asian region in order to share knowledge 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 the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) under the *Australian Radiation Protection and Nuclear Safety Act 1998* (the ARPANS Act) and its Regulations.

Enabling legislation in jurisdictions across Australia is not entirely uniform, mainly due to differences in drafting styles and conceptual approaches.

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, Australian Health Ministers endorsed the development of a *National Directory for Radiation Protection* (the National Directory) as a means of achieving uniformity in radiation protection practices between jurisdictions. The first version of the National Directory was accepted by Ministers on 29 July 2004. 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 safety and, subsequently, 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. In 2009, the Australian Health Ministers endorsed the inclusion of the Code of Practice in the National Directory, by that time most jurisdictions had already introduced the security requirements of the Code of Practice into local regulatory arrangements. In several instances, jurisdictions elected to revise their radiation legislation and regulations to promote an integrated approach to regulating the safety and security of radioactive sources.

The Code of Practice applies to the use, storage and transportation of category one to three 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 one to three source, incident reporting and recordkeeping. The security concepts and principles in the Code of Practice are consistent with those described in IAEA guidance on the security of radioactive sources.

In 2012, the National Radiation Security Advisor Certification Scheme, developed by ARPANSA, was adopted into the nationally recognised skills competency framework. The scheme will ensure the availability of a national pool of radiation security advisers that radiation regulatory bodies can accredit to develop, review and endorse Source Security Plans.

### 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 is important.

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

Security requirements set by governments need to be well informed of the manner in which radioactive sources are dealt with and, where necessary, requirements revised 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. Portable vehicle mounted radiation search systems are available at the national level; commercial aerial radiometric survey systems are also available and can be configured for searching for missing sources.

Development of national policy and facilities for the safe and secure storage of found sources, and disposal of radioactive sources declared as waste, is underway.

#### *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 declared as a National Terrorist Situation, a set of federal government plans, including the National Counter Terrorism Plan, are initiated as appropriate. First responders have received regular training and specialised equipment to deal with a range of CBRNE incidents including those involving radiation. ARPANSA maintains a world-class capability to locate, identify, characterise and attribute radiological material out of regulatory control and can operate as a supporting or supported organisation in cooperation with local law enforcement, defence and local radiation regulatory agencies as necessary. Decisions about protective measures are guided by the radiation protection framework set out in ARPANSA's *Recommendations on Interventions in Emergency Situations Involving Radiation Exposure, RPS7* (published in 2004).

Since 2010, ARPANSA has developed its own incident management plan with the objective of ensuring the effective, flexible and cross-agency coordinated delivery of its regulatory, scientific and expert technical adviser functions in response to a radiological or nuclear event.

#### *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. ARPANSA emergency preparedness and response teams maintain caches of active and passive personal dosimetry devices which can be deployed rapidly during an incident or event. Australia has developed 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:**

Regulatory bodies have the skills, knowledge and experience in fields including radiation protection, safety, law, regulation and communications needed to effectively implement the individual regulatory frameworks.

In implementing the Code, some regulatory bodies such as ARPANSA have recruited security experts. In addition, ARPANSA has delivered national training courses to licence holders, law enforcement and regulatory bodies on protective security fundamentals and requirements for implementing the Code.

As part of national programmes for CBRNE 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 that offer more comprehensive radiation protection training. The training regime varies between jurisdictions but is coordinated nationally.

#### **3.2 Lessons learned:**

While first responders are familiar with potential CBRNE threats and the appropriate responses, Australia's geography and the scale of a response required pose an ongoing challenge.

### **4. NATIONAL REGISTER OF SOURCES**

#### **4.1 Implementation:**

ARPANSA, working with the nation's other 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 receives automated daily updates of data from seven of the nine 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 systems for the reporting of uncontrolled sources operated only 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 Council of Australian Governments' report on the regulation and control of radiological material, 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 which is intended to accept, *inter alia*, disused sources which cannot be returned to the supplier.

## **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 or are potentially at risk of becoming 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 able to store radioactive sources of other origins at the request of a law enforcement or emergency management authority. Disused sources have been returned to overseas manufacturers or sent to disposal sites in accordance with relevant legal requirements.

The recycling and disposal 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.

Development of federal policy and facilities for the safe and secure storage and disposal of radioactive sources declared as waste is underway. ARPANSA published the *Regulatory Guide: Licensing of Radioactive Waste Storage and Disposal Facilities* in March 2013, which sets out the federal regulatory requirements and best-practice guidance for safely and securely storing and disposing of radioactive sources once they have been declared as waste.

### **6.2 Lessons learned:**

Only one jurisdiction has an ultimate disposal option for radioactive sources; all other jurisdictions rely on some form of storage. Disused radioactive material is stored in a number of locations across Australia. The condition of these stores and their security measures vary widely. The Australian Government is taking the necessary steps to establish a national radioactive waste management facility. Further work at the international level is required to facilitate return of disused sources to suppliers. At the national level, consideration needs to be given to issues surrounding the financial provision for end of life management.

## **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 to obtain permission from an authorised officer ARPANSA. 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 with which 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.

End.