Australian Government

Australian Nuclear Science and Technology Organisation

Long term Management Strategies for Disused Radioactive Sources

How to establish links between relevant instruments

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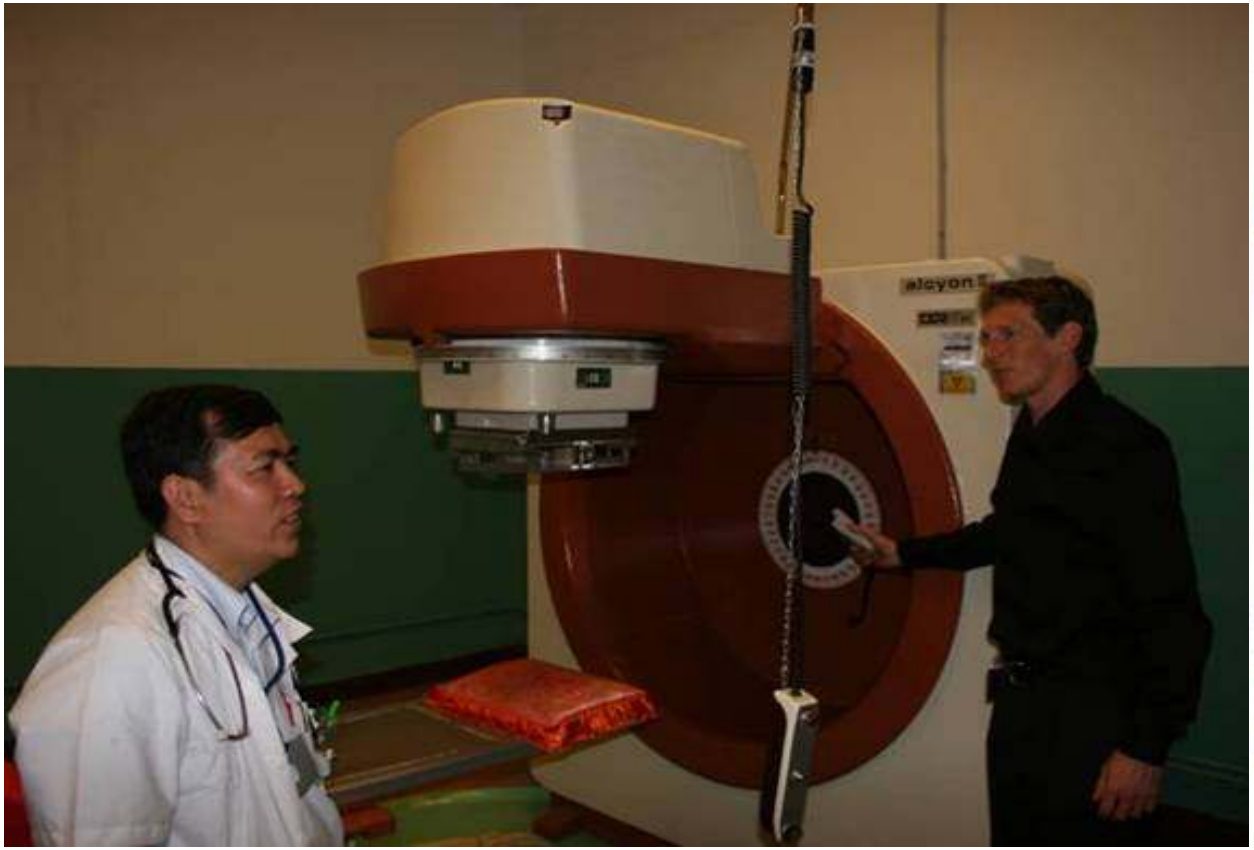
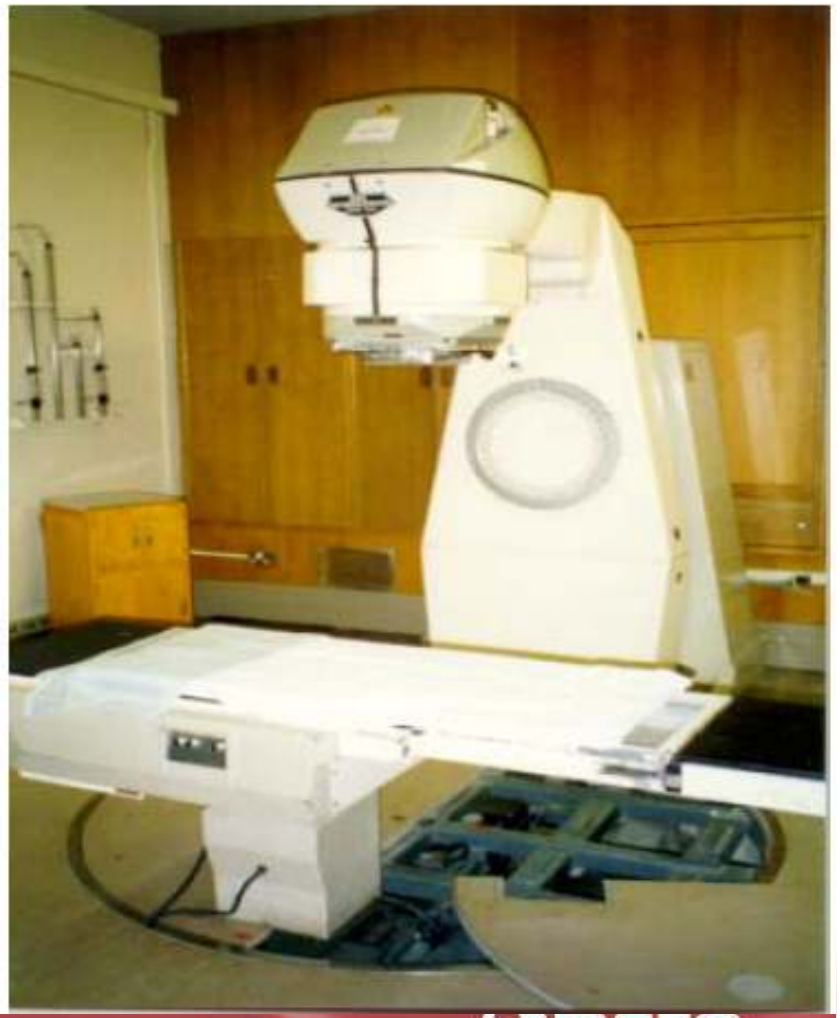
Radioactive sources

- Used safely, radiation saves lives.
- Some three million people are treated with radiotherapy each year.
- It’s used to test steel quality in cars, and check for flaws in jet engines.
- It’s part of our daily lives.

Co-60 Teletherapy

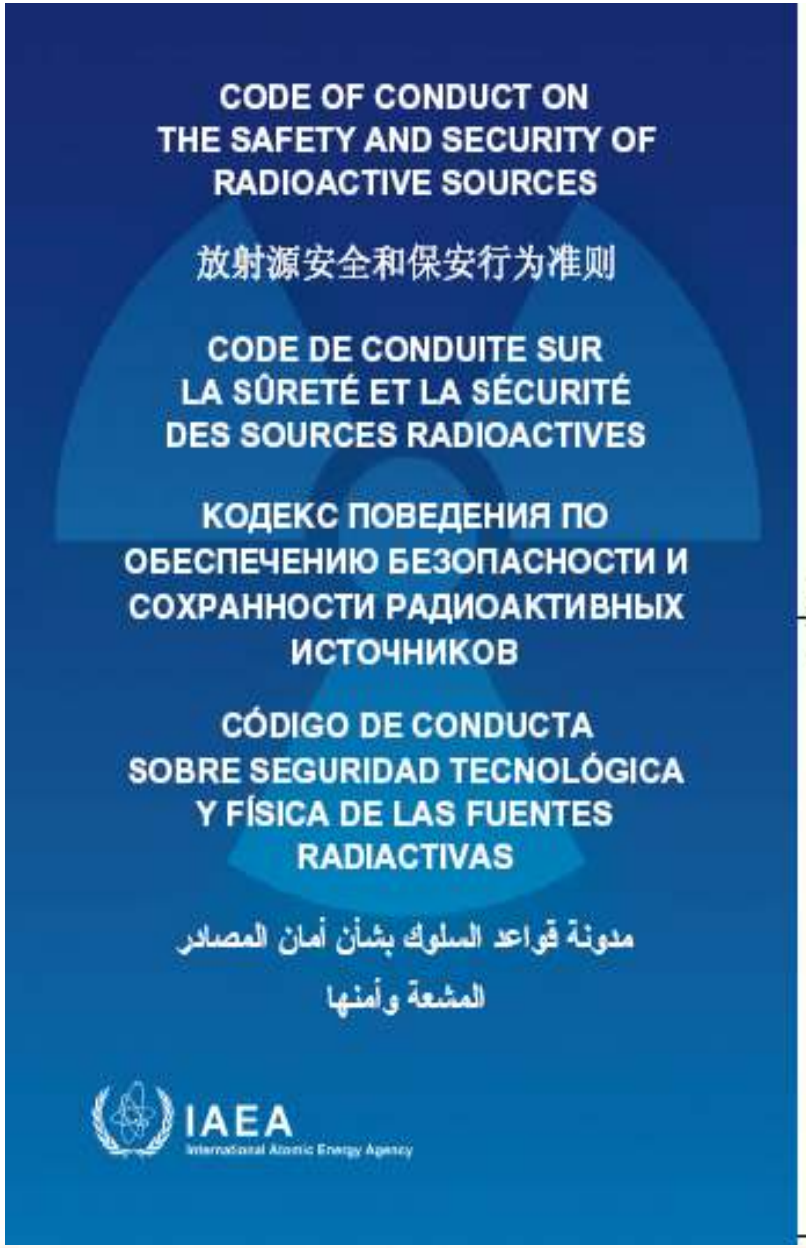


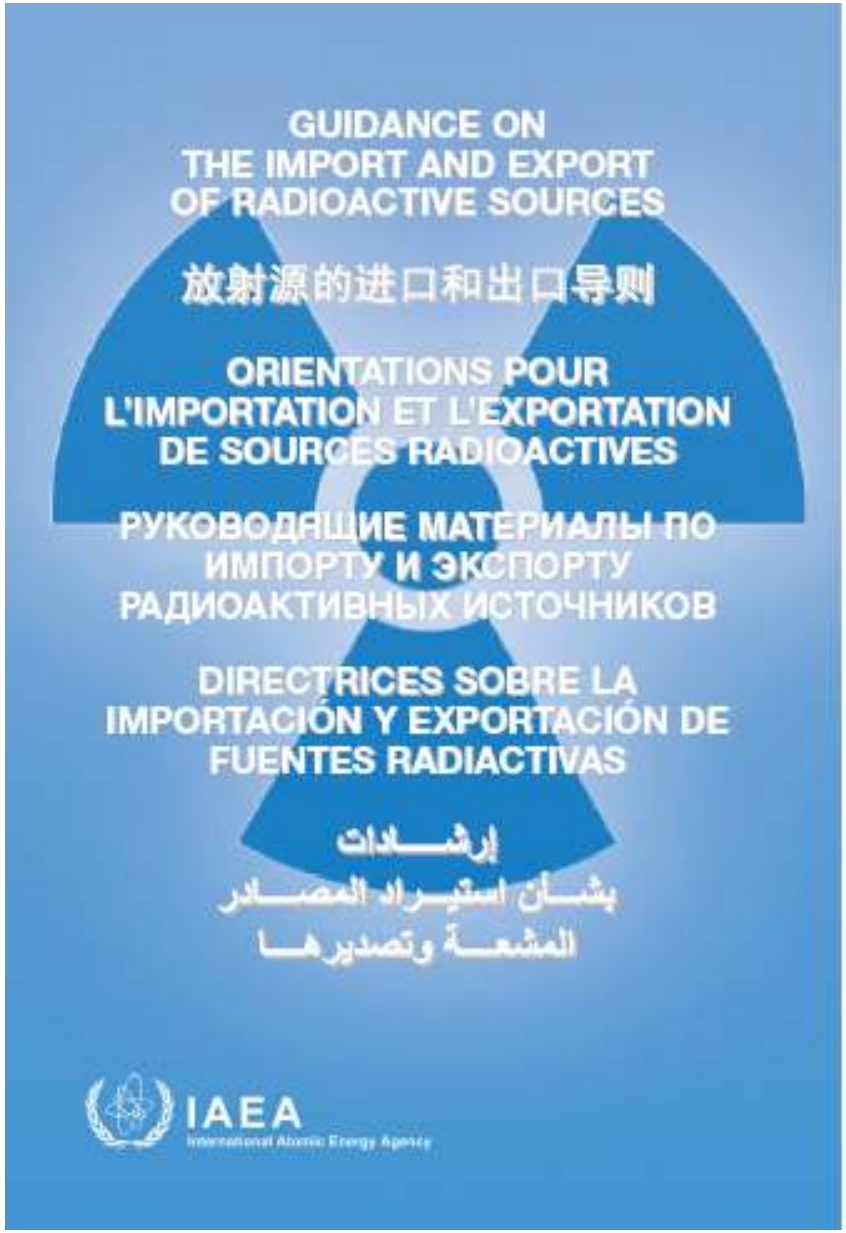


Cobalt-60 teletherapy machine

Industrial radiography in a workshop or in a field environment

Industrial radiography of pipes using Iridium-192


CODE OF CONDUCT ON
THE SAFETY AND SECURITY OF
RADIOACTIVE SOURCES
放射源安全和保安行为准则
CODE DE CONDUITE SUR
LA SÛRETÉ ET LA SÉCURITÉ
DES SOURCES RADIOACTIVES
КОДЕКС ПОВЕДЕНИЯ ПО
ОБЕСПЕЧЕНИЮ БЕЗОПАСНОСТИ И
СОХРАННОСТИ РАДИОАКТИВНЫХ
ИСТОЧНИКОВ
CÓDIGO DE CONDUCTA
SOBRE SEGURIDAD TECNOLÓGICA
Y FÍSICA DE LAS FUENTES
RADIACTIVAS
مدونة قواعد السلوك بشأن أمان المصادر
المشعة وأمنها
IAEA
International Atomic Energy Agency


GUIDANCE ON
THE IMPORT AND EXPORT
OF RADIOACTIVE SOURCES
放射源的进口和出口导则
ORIENTATIONS POUR
L'IMPORTATION ET L'EXPORTATION
DE SOURCES RADIOACTIVES
РУКОВОДЯЩИЕ МАТЕРИАЛЫ ПО
ИМПОРТУ И ЭКСПОРТУ
РАДИОАКТИВНЫХ ИСТОЧНИКОВ
DIRECTRICES SOBRE LA
IMPORTACIÓN Y EXPORTACIÓN DE
FUENTES RADIACTIVAS
إرشـــادات
بشـــأن استيـــراد المصـــادر
المشعـــة وتصديرهـــا
IAEA
International Atomic Energy Agency

Code of Conduct on the Safety and Security of Radioactive Sources

Management of disused sources:

7(a) Every State should, in order to protect individuals, society and the environment, take the appropriate measures necessary to ensure that the radioactive sources within its territory, or under its jurisdiction or control, are safely managed and securely protected during their useful lives and at the end of their useful lives

14. States should encourage the reuse or recycling of radioactive sources, when practicable and consistent with considerations of safety and security.

Code of Conduct on the Safety and Security of Radioactive Sources

15. Every State should, in implementing this Code, emphasize to designers, manufacturers (both manufacturers of radioactive sources and manufacturers of devices in which radioactive sources are incorporated), suppliers and users and those managing disused sources their responsibilities for the safety and security of radioactive sources.

Code of Conduct on the Safety and Security of Radioactive Sources

20(e)(vii). Every State should ensure that the regulatory body established by its legislation has the authority to attach clear and unambiguous conditions to the authorizations issued by it, including conditions relating to the safe and secure management of disused sources, including, where applicable, agreements regarding the return of disused sources to a supplier.

Code of Conduct on the Safety and Security of Radioactive Sources

- 20 (q) Every State should ensure that the regulatory body established by its legislation has the authority to ensure that, where disused sources are stored for extended periods of time, the facilities in which they are stored are fit for that purpose.

Code of Conduct on the Safety and Security of Radioactive Sources

22(b). Every State should ensure that its regulatory body ensures that arrangements are made for the safe management and secure protection of radioactive sources, including financial provisions where appropriate, once they have become disused

Code of Conduct on the Safety and Security of Radioactive Sources

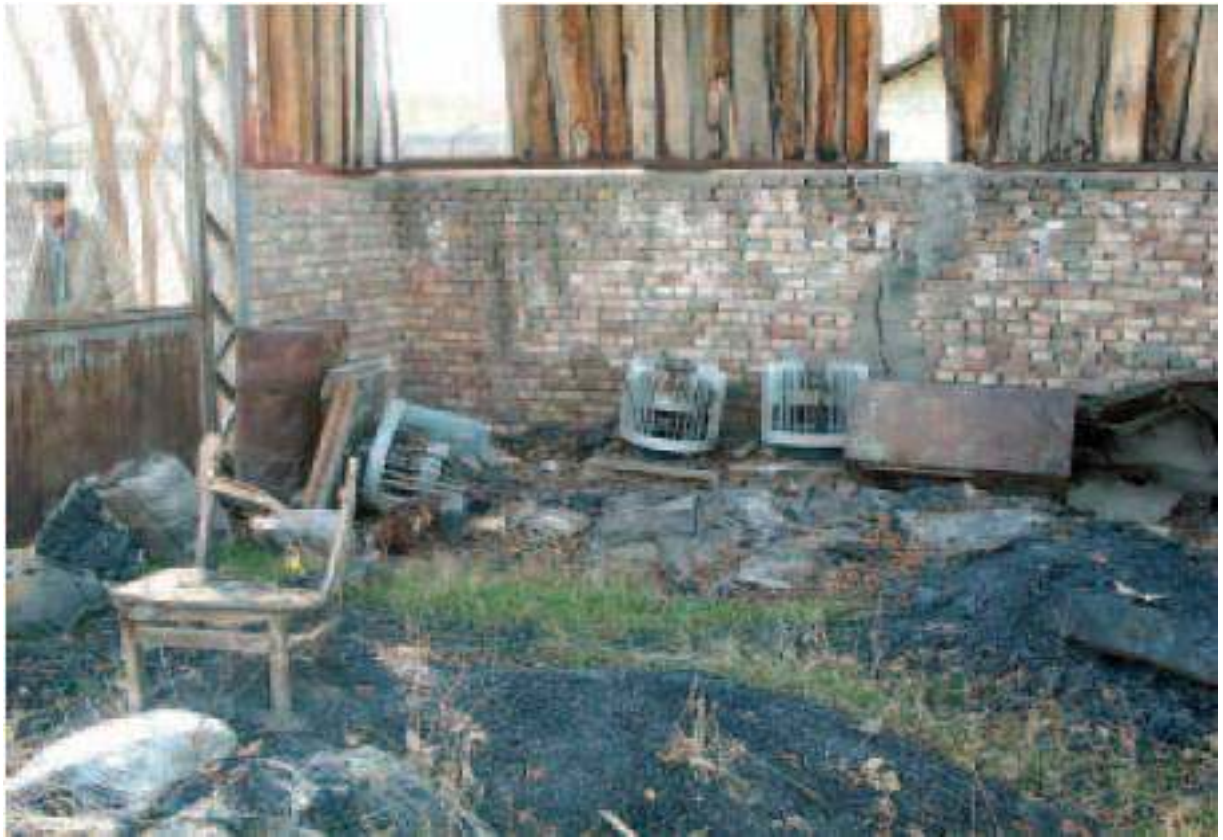
27. Every State should allow for re-entry into its territory of disused radioactive sources if, in the framework of its national law, it has accepted that they be returned to a manufacturer authorized to manage the disused sources

Very similar to Art 28(2) of Joint Convention

Disused radiotherapy source head in safe and secure storage

Storage of well-logging devices and their transport containers

Abandoned radioactive sources



Dismantled and abandoned thermogenerators in Tajikistan

Ref: IAEA Gonzales March 2003 p 39, 43

29 June to 1 July 2009

Technical Meeting on Implementation of the Code of Conduct on the Safety and Security of Radioactive Sources with Regard to Long Term Strategies for the Management of Sealed Sources

Return to supplier

- The preferred option for management of disused sources in most countries is return to the supplier.
- However, return to supplier is often not a simple process.
- Some suppliers go out of business.
- In other cases, the source type, or the container in which it is transported, is no longer certified for international transport.

Return to supplier

- Damaged sources pose particular challenges in terms of shipment, and even well-maintained sources in certified containers can be subject to denial of shipment by carriers.
- Even if none of these problems exist, the cost of return can be very high – sometimes around the same as the cost of the original purchase.

Return to supplier

- Problem: application to disused sources of national laws which forbid the importation of radioactive waste – even if those sources were originally exported from the state in question.
- Situation particularly difficult where such a law applies to sources exported prior to its entry into force.
- Problem can be avoided if the source is not designated as waste at the time it is returned.

Long-term storage

- Good regulatory practice requires licensees to either send disused sources back to the manufacturer, or to hold them at, or send them to, a licensed recycling or waste management facility.
- Responsibility of the state to provide central storage or disposal facilities for disused or orphaned sources which cannot be returned to the supplier.
- National collection programs

Disposal

- Sources which have not been disposed of constitute an ongoing safety and security risk.
- For states with nuclear fuel cycle facilities or facilities undergoing decommissioning, disused sources will form only a small fraction of the overall waste volume.
- For states without nuclear fuel cycle facilities, the public acceptance, financial and technical obstacles to the siting of waste disposal facilities may be significant.

Overlap between Joint Convention and Code of Conduct

- Joint Convention covers disused sources
- For many countries, disused sources are major element of radioactive waste
- Triennial review process
- Major focus of Joint Convention review process is fuel cycle wastes
- 51 parties

Overlap between Joint Convention and Code of Conduct

- Code of Conduct covers sources throughout their life cycle
- Triennial information exchange process
- Management of disused sources one element of that discussion
- 94 countries have made commitment

Overlap between Joint Convention and Code of Conduct

- Two processes conducted in isolation from one another
- Important that those responsible for overall waste management policy and regulation are aware of issues specific to disused sources

Overlap between Joint Convention and Code of Conduct

- Should there be some means of linking the two which does not require amendment of either?
- Little detail on issue in Joint Convention summary report.
- Some detail in Code of Conduct report

Conclusion

- Disused sources constitute a safety and security threat
- Governments need to be proactive in improving their management
- Management needs to be integrated with overall national waste management strategy
- Such integration should be reflected at international level by links between instruments.