Management of Radioactive Sealed Sources in Portugal

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ITN/IAEA, Lisbon, 11-15 October - 2010

Legal Framework

Council Regulation (Euratom) n° 1493/93: Regulates the Shipments of Radioactive Substances between Member States

Decree-Law n°165/2002 (M.Health): Establishes the Competent Authorities in the area of Radiological Protection and transposes parts of the Directive 96/29/Euratom, for national legislation

Decree-Law n°174/2002 (M.Health): Establishes Technical Authorities for Intervention in case of radiological emergency and transposes parts of the Directive 96/29/Euratom, for the national legislation

Decree-Law n° 140/2005 (M. Health): Establishes the exemption level and transposes parts of the Directive 96/29/Euratom for the national legislation

Decree-Law n°38/2007 (M. Science, Technology and Higher Education): Transposes for the national legislation the Directive n° 2003/122/Euratom , concerning sealed sources, orphan sources and high activity sources.

Main competent National Authorities related to SRS:

National Authority for Civil Protection (ANPC), (M. Homeland Security)

General Directorate for Health (DGS), (M. Health)

Portuguese Agency for Environment (APA), (M. Environment)

Nuclear and Technological Institute (ITN), (M. Science, Technology and Higher Education)

All pratices, equipments and facilities involving radioactive sealed sources need authorization/ licencing from General Directorate for Health, if the source activity is above exemption values

Procedures to obtain a Sealed Radioactive Source (SRS)

- **Licence issued by General Directorate for Health**

- **ITN verifies compliance with D.L. nº 38/2007**
  - Emergency plan if $A > 1TBq$
  - Deposit in a bank account (5% or 10 %)
  - Civil assurance (depending on the A)
  - Fulfillment of the document Council Regulation (Euratom) nº 1493/93
  - Annual declaration about all SRS inside **the** facility

- Only after total compliance, ITN issues the following licenses:

  - Ownership license
  - Entrance in Nacional Territory license
  - Transport license (if necessary)

All these licences can be used to control the SRS in use in the country

Also the bank account deposit is a good way to control SRS

Is it perfect ? It works but can always be improved

According this D.L. 38/2007 the owner must sent back the DRSS to the supplier, transfer to a recognised installation or another authorized owner, 30 days after the end of utilization

Becaming a Disused Radioactive Sealed Source (DRSS): End of life cycle or any other reason

- DRSS* should be sent back to the supplier by the owner and ITN issues a:

  Transport Licence, according to international regulations (ex: ^{192}Ir, ^{75}Se, etc.)

or

- DRSS* is declared by the owner as Radioactive Waste and ,

  according to the law, is collected by ITN (ex: ^{60}Co, ^{137}Cs, etc.)

NOTES *:

- Many of these DRSS were bought long time ago and the supplier is unknown or does not exist anymore

- In this stage, the owner can get back the bank account deposit related to the source eliminated, providing proving of its destiny (back to the supplier, transfer to another authorized owner or ITN collection)

To collect DRSS (by ITN) is necessary:

- A Transfer Licence issued ITN, (transfer the responsability to ITN)
- A Transport Licence issued by ITN
- Fulfilment of a document for the request of radioactive waste collection where the owner, the radionuclide, the activity, transport, etc. are identified

The costs related to radwaste management are regulated by Ministerial Order nº 14641/2005, from ITN/MCTES

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PEDIDO DE RECOLHA DE RESÍDUOS RADIOACTIVOS

1. Entidade:.....
2. Instalação:.....
3. Contribuinte nº:.....
4. Morada:.....
   .....
5. Telefone:..... Fax:..... E-mail:.....
6. Pessoa a contactar:.....

Características dos resíduos radioactivos

7. Radionuclido:..... 8. Actividade:.....
9. Tipo de resíduo:..... 10. Tipo de embalagem:.....
11. Massa (kg):..... 12. Volume (m^3):.....
13.

Estado	Combustível	Comburente	Inflamável	Explosivo	Tóxico	Putrescível
Sólido	sim	sim	sim	sim	sim	sim
Líquido	não	não	não	não	não	não

(Riscar o que não interessa)

14. Informações adicionais:.....
    .....
15. Local e data:.....
16. Assinatura:.....

17. Veículo:..... 18. Hora: partida.....chegada.....
19. Trajecto:.....

(A preencher pelo transportador)

20. Data de recolha:..... 21. Nº de recolha:.....
22. Débito de dose a 1m:..... 23. Débito de dose ao contacto:.....
24. Estado geral da embalagem:.....
25. Observações:.....
26. Assinatura:.....

(A preencher pela UPSR)

Examples of DRSS collected by ITN and waiting dismantling and/or conditioning for intermediate storage at PAIRR (ITN)

The disused sealed sources, after collected and segregated, are conditioned in bitumen matrix inside cement or metalic drums (each drum contains only one type of radionuclide and dose rate outside is controled)

The drums are stored inside the Radioactive Waste Interim Facility (PAIRR)

* Until there are about 120 drums with DRSS

PAIRR (ITN) - Intermediate storage for disused radioactive sealed sources

ITN, Radioactive Waste Interim Storage Facility (PAIRR)

Management of DSRS

Is there still possible to improve at global level?

Yes, but they are costly and, sometimes, very difficult!

- Improve controls at all entries (by land, see and air) installing portal monitors

- Improve control mechanisms (Portal monitors) at scrap yards and legislate harsh penalties for non-compliers

- Improve training and education of all involved in the production, use and radwaste management

A very thight control of DRSS, as part of a common strategy on safety and security procedures is important to avoid:

- Reaching a siderurgy/foundry where an accident can occur, as already happened with severe consequences to the public and to the environment

- Becaming a serious threat by the risk of being used as a dirty bomb, with possible severe consequences

Needs in terms of the Portuguese DSRS control and strategie:

- To create an Independent National Authority/Regulatory Body for Radiological Protection and Nuclear Safety

- To elaborate a National Plan for Radioactive Management including Disused Radioactive Sealed Sources, according to international recommendations, to be approved by the National Authorities concerned/involved

- To study possible sites, in geological, hydrological, social and radiological terms, where, in a near future, the National Near-Surface Repository can be authorised/licensed by the Regulatory Body or Government to dispose all radwaste produced in the Country

thank you for your attention!