

PORTUGAL

transposing

**Council Directive 70/2011
safe management of spent fuel and
radioactive waste**

Portugal in the international context

- Member of EU
 - Party of all its treaties, namely EURATOM
 - Subject to all EU Directives
- Member of IAEA
 - Convention on Nuclear Safety - entry into force 18/8/1998
 - Treaty of Non-Proliferation of Nuclear Weapons - accession 15/12/1977
 - Safeguards Agreement - entry into force 1986 accession to EEC
 - Additional Protocol - entry into force 30/4/2004
 - Joint Convention on Spent Fuel and Radwaste - entry into force 13/8/2009

Portuguese nuclear and radiological context at a glance

- NO Nuclear Power Plants (NPP)
- Construction of NPP is NOT in the AGENDA
- 1 Research Reactor (PRR) : nuclear safety, fuel, radwaste
- Radwaste: industry, medicine, research - only low and intermediate activity level

Portuguese framework before 2012 regulatory, legal and infrastructures

Until 2012 NO independent Regulatory Authority for the sectors

- radiological protection
- nuclear safety
- spent fuel & radwaste management

"Regulatory" competences were

- shared among various Authorities with reduced interaction between them
- attributed by a long list of different legal diplomas

(explicit and tacit revocation : a problem!)

Portuguese framework before 2012

regulatory, legal and infrastructures

- Decree-Law 180/2002 - radwaste from medicine with a short half-life is stored by the producer for decay
- DL 165/2002 - collection, segregation, conditioning and interim storage of solid radwaste : ITN (absorbed by IST-UL)
- Bilateral agreement with USA - shipment of all spent fuel

Storage facility - PAIRR  Pavilion Interim Storage of Radwaste

- Managed by ITN
- located at ITN campus (campus of the PRR near Lisbon)

Framework started to change in 2012

- Decree-Law 30/2012 - created the Regulatory Authority for safety of nuclear installations



- Decree-Law 262/2012 establishing obligations of operator of nuclear installations

**transposed of Council Directive 2009/71/EURATOM
community framework for safety of nuclear
installations**

milestone

Framework continued to change in 2013

- Decree-Law 156/2013 - created the Regulatory Authority for safe management of spent fuel and radioactive waste



**transposed of Council Directive 2011/70/EURATOM
community framework for safe management of
spent fuel and radioactive waste**

milestone

Framework has to continue to change



- regulatory competences in the 2 sectors: nuclear safety and safe management of spent fuel and radwaste
- still facing strong budget limitations due to strict financial restrictions (Troika: EC+ECB+IMF)
- still in process of self organization and recruiting of technical personnel and law adviser
- president and 2 vice-presidents Physics Professors with PhD in Nuclear Physics

Framework has to continue to change

- NO Regulatory Authority for radiological protection YET!
- New BSS Council Directive, replacing Council Directive 96/29/EURATOM, is coming out and oblige such RB
- Still dispersion of competences - examples
 - licensing activities, facilities and equipment involving ionizing radiation - [DGS-Ministry of Health](#)
 - authorizing possession, transport, import, sale, transfer of sealed radioactive sources (equipment) - [IST/UL \(Univ Lisbon\)](#)
 - license processing of radioactive ores - [DRE-Ministry of Economics](#)

Framework has to continue to change

- Still work to be done to build a coherent and integrated regulatory system
- Still work to be done to resolve dispersion of competences among various Authorities
- Still work to be done to get a less fragmented legal system

Current policies and framework

DL 156/2013 - Council Directive 2011/70/Euratom

Scope

- spent fuel management - civilian activities
- radwaste management, generation to disposal - civilian activities

Out of scope

- radwaste from extractive industries (other published DL)
- authorized releases (other published DL)
- disused sealed sources repatriation to a supplier/manufacturer
- spent fuel shipment of RR to a country where fuels are supplied/
manufactured within international agreements

Current policies and framework

DL 156/2013 - Council Directive 2011/70/Euratom

General principles

- radwaste generation - minimum as reasonably practicable
- spent fuel & radwaste - safely managed, including long term with passive safety features
- ultimate responsibility - state
- prime responsibility - producers or license holders
- legal radwaste clearance & exemption limits
- implementation of measures - graded approach
- spent fuel & radwaste management costs - borne by producers:
transport, storage, taxes for disposal ...

Current policies and framework

DL 156/2013 - Council Directive 2011/70/Euratom

General principles

- radwaste not imported unless authorized by RA
- radwaste produced in the country - disposed of in the country, except when exported within agreements
- radwaste transport obey rules of dangerous material
- transfer of spent fuel & radwaste to outside the country - criteria of previous DL (Directive 2006/117/EURATOM)
- radwaste disposal in Portugal - only 1 public entity near surface
- training and education of personnel
- R&D for better solutions
- transparency - relevant information to workers & public

Current policies and framework

DL 156/2013 - Council Directive 2011/70/Euratom

Licensing

- License required for any activity or facility of spent fuel or radwaste management
- Exceptions
 - authorized releases
 - radwaste storage for less than 30 days
 - management in radiological emergencies - regulated by other published DL

Current policies and framework

DL 156/2013 - Council Directive 2011/70/Euratom

Competences of Regulatory Authority - COMRSIN

- licensing, inspection and enforcement
- classification of radwaste
- application of liberation and exclusion limits
- authorizing spent fuel and radwaste transfer & transport
- authorizing disposal of radwaste
- national radwaste inventory
- information to public and workers

Current policies and framework

DL 156/2013 - Council Directive 2011/70/Euratom

Radwaste producer

- either authorized releases
- or license holder and can store radwaste for more than 30 days according to license terms
- or transfers it to licensed facility following RA instructions; while storing same safety rules of radmaterial (before being radwaste)
- beginning of every year inform RA about radwaste production of past year and foreseen for that year

Current policies and framework

DL 156/2013 - Council Directive 2011/70/Euratom

Facilities for spent fuel & radwaste management

- general safety requirements
- managing system
- review and assessment
- internal emergency plans

Radwaste disposal public facility

- only one disposal facility which public - successor of PAIRR
 - managed by IST-UL
 - located on the CTN/IST-UL (campus of the PRR near Lisbon)

Current policies and framework

DL 156/2013 - Council Directive 2011/70/Euratom

Transitory measures

- within 6 months producers inform RA about production & storage - **inventory milestone**
- within 2 years producers and operators take required measures to be in compliance with new legislation **milestone**
- inspections will follow **milestone**

National program

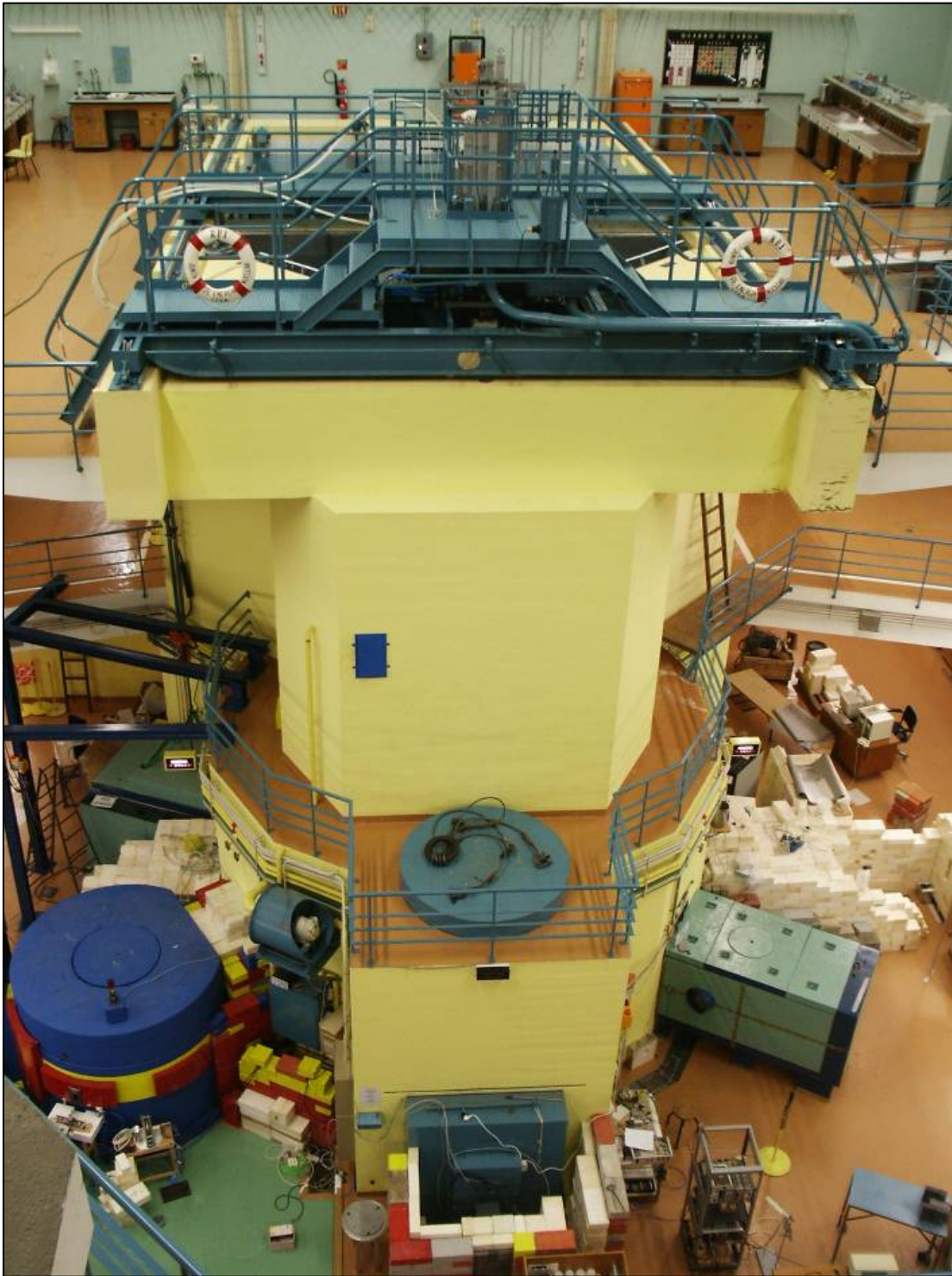
- within 1 year RA designs the national program - solutions & tools for implementation of national policies
milestone with milestones

PRR - Portuguese Research Reactor

Only research reactor in the Iberian Peninsula

- present operator: IST-UL
- located nearby Lisbon
 - 5 km from Lisbon border
 - 12 km from Lisbon down town
 - 1-2 kms from the Tagus river, 30 m above sea level
- license renewed by the Portuguese Government after verification of compliance with legal safety rules (1996)
- near future - COMRSIN will analyse compliance with new legislation DL 262/2012 **ratification of license** **milestone**

PRR



- Type - Pool
- Power - 1 MW
- First criticality - 1961
- Converted to LEU fuel in 2007, within TC project POR4016 of IAEA

NO event has been reported so far

PRR

FUEL

- fresh fuel - appropriate facilities on site
- spent fuel - stays in pool until shipment to USA : bilateral agreement
- at present only existent fuel in the core
- irradiation of fuel will stop in May 2016
- fuel will be returned to USA before May 2019

RADWASTE

- no high radioactivity waste stays
- remaining low activity waste - disposal facility

Generation of radwaste

Industry, medicine, research

Licensed Entities with activities involving ionizing radiation

Industry	Health	R&D	Total
200	72	6	278
72%	26%	2%	100%

Types of Licenses

Sealed sources	Nuclear Medicine	Total
803	40	843
95%	5%	100%

Public disposal facility - entries

Year	Selead Sources no	Smoke detect. no	Light. Rods no	Medical academia radwaste m3	^{99m} Tc generat. no	Iodine seeds no	Scrap metal Kg	Depleted Uranium Kg
2009	78	11315	24	24.5	276	26	4000	20
2010	112	5004	27	19.75	529	57	1000	-
2011	62	1721	6	20	365	19	827	-

Public disposal facility

	Medical waste	Selead sources	Solid waste	Liquid effluents
Total number of drums each drum - 220 l	565	146		
Radwaste waiting dismantling		260	150m3	40m3

- Facility very crowded
- **Application of legal liberation limits will free a significant amount of space**

Main challenges

- Financial restrictions
- National program
- Raising safety culture of all stakeholders
- Transparency - public participation

Main question

- Shared disposal facility?

**THANK YOU
FOR
YOUR ATTENTION**