



**5th Review Meeting
of the Joint Convention on the Safety of Spent Fuel Management
and on the Safety of Radioactive Waste Management
IAEA, Vienna 11-22 May 2015**

**Greece
Country Group 2**

Greek Atomic Energy Commission (EEAE)

Presentation Outline

- Summary of basic information on the national program
- Significant events since the 4th RM
- Changes in the national program since the 4th RM
- Actions on suggestions and challenges from the 4th RM
- Planned measures and challenges
- Q&A

Summary of Basic Information

- Greece has no NPPs and no intention to build any
- One research reactor (GRR-1) in extended shutdown
- Radioactive waste originates from:
 - ✓ non nuclear applications: medical, research, industrial, consumer products (e.g. lightning rods, smoke detectors)
 - ✓ past operation of the reactor

Summary of Basic Information

- **Spent fuel management policy**
 - **Key principles of the National Policy within the national legislation (PD 122/2013)**
 - Spent fuel to be returned to the country of origin
 - Agreement for fuel return shall be in place prior to any import of nuclear fuel
- **Spent fuel management practices**
 - Irradiated LEU fuel exists in GRR-1
 - Safe, interim (wet) storage in secure GRR-1 area, under licensee surveillance programme
 - EURATOM and IAEA safeguards are applied

Summary of Basic Information

Radioactive waste management policy

- **Key principles of the National Policy within the national legislation (PD 122/2013)**
 - Disposal only for radioactive waste produced in the country.
 - Until the construction of a disposal facility, waste shall be safely stored in a licensed storage facility.
 - The production of radioactive waste shall be minimized, using appropriate measures, including recycling and reuse.
 - The management of radioactive waste shall be performed with safety, in the long term.
 - A graded approach shall be applied, in accordance with the magnitude and the characteristics of the potential hazards.
 - The cost for the management of radioactive waste is borne by the waste producers.

Summary of Basic Information

Current situation

- **Practices**
 - On-site storage until decay and discharge (short lived waste, e.g., medical applications)
 - ✓ Within the operation license
 - Sources: return to the supplier
 - ✓ EEAE keeps the National Database
 - ✓ Security requirements for all sources. Special requirements for HASS licensees
 - ✓ Orphan sources: storage in RWIS

Summary of Basic Information

Current situation

RWIS

- Licensed Activities:
 - Interim storage of radioactive waste and sources
 - Dismantling of radioactive devices
 - Characterization of legacy waste from past practices (e.g. reactor resins)
 - Packing or re-packing of materials
 - Release of materials

- The recent licensing of RWIS is based on the RPR and PD 122 requirements and on the guidance provided in IAEA WS-G-2.1, “Storage of radioactive waste: safety guide”

Summary of Basic Information

Current situation

- **Existing legislative system**
 - PD 122/2013: Transposition of Council Directive 2011/70/EURATOM establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste
 - Radiation Protection Regulations
 - MD 10828/2006, transposition of the HASS Directive
 - Sealed sources: Legal requirement exists for financial provisions by the licensee regarding for source management and return to the supplier.
 - MD Π/122/305/2012, Safety requirements and licensing of research reactors
 - Other (Emergency preparedness and response, Ratification of International Conventions,...)

Summary of Basic Information-Matrix

Type of Liability	Long term management policy	Funding of Liabilities	Current practice/ Facilities	Planned facilities
Spent Fuel	Return to the country of origin	Government	Irradiated fuel wet storage at GRR-1	None
Nuclear Fuel Cycle Waste	N/A	N/A	N/A	N/A
Non-power waste	On site storage, decay and release for short live waste. Longer lived waste are stored until final disposal solution	Licensee, Government	On site storage, decay and release for short live waste. Longer lived waste are stored until final disposal solution	National RW Interim Storage and Management Facility Options for disposal to be investigated
Decommissioning Liabilities	Decommissioning waste stream to be included in the national program waste streams. Decommissioning plan is required by law	Licensee, Government	No plans have been submitted	
Disused Sealed Sources	Return to the manufacturer. Orphan sources are stored in National RW Interim Storage and Management Facility until final disposal solution	Licensee, Government	Return to the manufacturer. Orphan sources are stored in RWIS	National RW Interim Storage and Management Facility Options for disposal to be investigated
Mining & Milling waste	N/A	N/A	N/A	N/A

Summary of Basic Information

Regulatory authority

Greek Atomic Energy Commission (EEAE)

- Public entity: “legal person of public law” with administrative and financial independence.
- Regulatory authority for the control, regulation and supervision in the fields of nuclear energy, nuclear technology, radiological, nuclear safety and radiation protection.
- Ionizing and non ionizing radiation facilities and activities
- IAEA Regional Training Centre in Europe, in English language, in radiation, transport and waste safety & nuclear security (long term agreement with IAEA, ratified by Law)



Significant events since the last RM-IRRS mission

IRRS completed in 2012

- ✓ Report published in EEAE website
- ✓ 28 Recommendations, 10 Suggestions, 8 Good Practices
- ✓ 8 Recommendations and 2 Suggestions directly related to RW management (given in National Report)
- ✓ The action plan prepared by EEAE in the self-assessment phase was found by the IRRS team to be closely correlated with the IRRS findings



Changes and improvements since the 4th RM

- ✓ Implementation of IRRS Mission R&S has advanced.
- ✓ As of 1.1.2014, EEAE implements an Integrated Management System, in line with IAEA GS-R-3.
- ✓ NCSR “D” RWIS upgrade and conditional licensing as interim storage facility
- ✓ Characterization of stored historical waste, formally assigned to RWIS
- ✓ PD 122/2013: Basic legislative instrument for the transposition of the Council Directive 2011/70EURATOM establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste.

Implementation of the Council Directive 2011/70/EURATOM

- The additional legislative documents are in the process of approval-signing by the Government (as of April 2015).
 - Establishment of the national legislative, regulatory and organizational framework for the safe and responsible management of RW (PD)
 - National Policy for RW Management (MD)
 - **National Program** for RW Management (MD), according to the Council Directive 2011/70/EURATOM
 - Licensing of RW management facilities and activities (MD)

Implementation of the Council Directive 2011/70/EURATOM (cont.)

- **National Program:** Under approval. Two IAEA expert missions for assisting in its development and participation in EURATOM workshops. It provides for:
 - ✓ Completion of waste inventory and streams
 - ✓ Definition of a national interim storage and waste management facility. Most probably RWIS (NCSR “D”) will be upgraded in order to play this role (to be defined within 1 years after the issuance of the new legislation)
 - ✓ Investigation for the final disposal options
 - 5 years after issuance: proposal for the technical solution
 - 10 years after issuance: siting investigation-proposal

Regulatory authority (EEAE)

- Law 4310/2014 was issued on December 2014, which reinforces EEAE as regulatory authority:
 - Enforcement
 - Inspectors role is reinforced
 - Enhances transparency
 - Consolidates remit and responsibilities of the authority

Actions on suggestions and challenges from 4th RM

- **Disposal options-ultimate solution**
 - To be defined within 5 years after the issuance of the National Program, which is in the process of Governmental approval
- **Proper addressing of future waste streams, including decommissioning of the reactor**
 - Finalization and maintenance of inventory and waste streams, including future estimation, is provided in the NP (within 2 year after issuance of the relevant MD, including GRR-1 decommissioning stream)
- **Completion of legacy waste characterization**
 - RWIS is assigned with the characterization of the historical waste. Work is ongoing

- Implementation of the National Program “roadmap”

Planned Measures to Improve Safety

- Enactment of extensive, new legislation
- Continuation and finalization of waste streams and inventory estimation
- Participation in R&D programs for common or shared activities with other European countries

Questions Raised from Peer Review of 2014 Report (Coordinator's report)

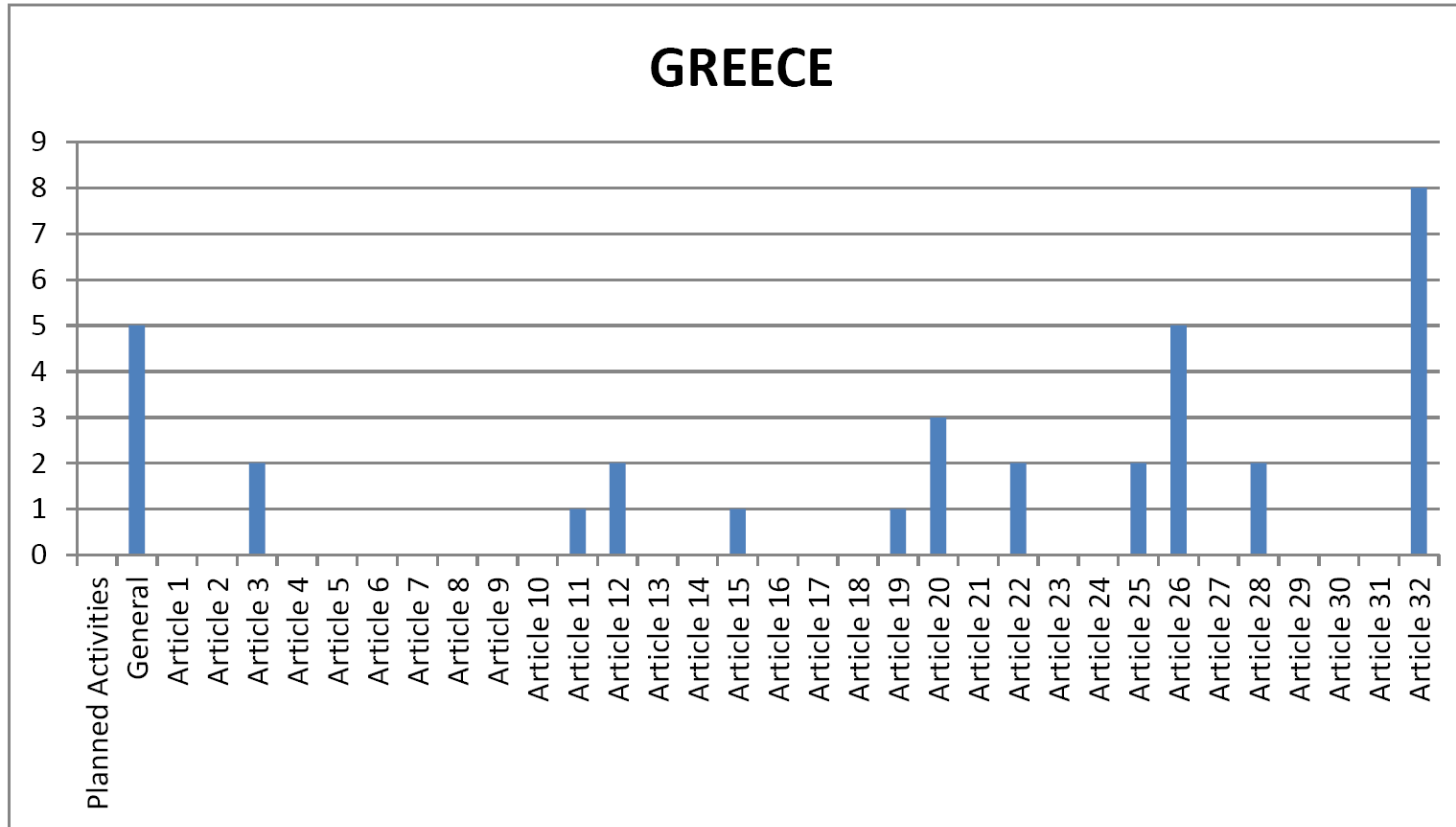
34 Questions from 9 Countries:

Table 2 Summary of Comments/Questions to Greece

Name of CPs	Group	Number of Cs/Qs
Austria	2	2
Belgium	2	8
Bulgaria	1	1
Czech Republic	2	5
France	2	6
Germany	6	3
Ireland	2	2
South Africa	2	4
United States of America	1	3
	total	34

Questions Raised from Peer Review of 2014 Report (Coordinator's report)

Referred to:



✓ All questions were answered

Questions Raised from Peer Review of 2014 Report (Coordinator's report)

Main points of interest:

Table 3 Main Interests or Topics Extracted from CPs' Comments/Questions

Article	C/Qs	Important Topics
General, 26	5	The extended shutdown, future plan & strategy of GRR-1 (Greek Research Reactor)
3	2	The definition of NORM in Greek legislation & the control of NORM
28, 32	2	<ul style="list-style-type: none">· The status of the disused sealed sources in Greek national legislation· The policy of the return of the disused sealed sources to the supplier
32	2	<ul style="list-style-type: none">· The strategy and timescale for site selection and commissioning of the disposal facility· what acceptance criteria for conditioned waste without a repository

Conclusion

- Significant progress has been made in developing new legislation
- Efforts have been undertaken and important steps have been taken towards the development and implementation of the National Program for Radioactive Waste Management up to end.

Thank you for your attention!

