6th Review Meeting of the Convention on Nuclear Safety

Greece
Country Group 4

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Presentation Outline

- Summary of basic information
- Changes since the last Review Meeting
- Significant events since the last RM
- Action on challenges from the last RM
- Actions taken in the light of Fukushima Daiichi accident
- Planned measures to improve safety
- Current and future challenges
- Good practices and efforts
- Questions raised for Peer Review of National Report
- Updates to National Report to 6th RM
- Conclusions

Summary of basic information on the national programme

- Greece has no nuclear installation and no intention to build any in the foreseeable future (1 RR and 1 sub-critical assembly)

- Articles within the scope on CNS:
  - Art. 7: Legislative and regulatory framework
  - Art. 8: Regulatory body
  - Art. 16: Emergency preparedness

Summary of basic information on the national programme
Art. 7: Legislative and regulatory framework

- National legislation is in accordance and fulfils the requirements of this article

- A list of the legislation is provided in the National Report:
  - Ratification of international conventions
  - Legislation establishing the system of licensing for research reactors
  - Emergency preparedness
  - National radiation protection legislation, implementing the EC BSS
  - Other relevant legislation

Summary of basic information on the national programme
Art. 8: Regulatory body

Greek Atomic Energy Commission

- Autonomous public organization
- Detailed description is provided in the National Report

Summary of basic information on the national programme
Art. 16: Emergency preparedness

- Greece has established:
  - Radiological emergency preparedness regulations, plans and organization scheme
  - A fairly extensive monitoring network covering the national territory

  Detailed description is provided in the National Report

Changes in the national programme since the last Review Meeting

- Changes in Laws and Regulations (short overview)
  - Transposition of the EC Directive 2007/71/Euratom, establishing a Community framework for the nuclear safety of nuclear installations (PD 60/2012)
  - Regulations with regard to licensing and safety requirements for research reactors (MD P/112/305/2012)
  - Transposition of the EC Directive 2011/70/Euratom establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste (PD 122/2013)
  - Amendment of the Convention of Physical Protection of Nuclear Materials (Law No. 3990/2011)

- Legislation in progress
  - Draft of PD and MD required by PD 122 (Radioactive waste management)
  - New European BSS transposition. A working group in GAEC has been formed.

Significant events since the last review meeting

- No events

Action on challenges and Planned Measures from the last Review Meeting

- Maintenance of nuclear safety expertise
  - Participation in the review process of the EU Stress Tests and in on-site visits
  - On the job training of GAEC staff at US NRC

- Update of the licensing framework for the GRR-1
  - New regulations have been issued
  - GRR-1 is considered to be in extended shutdown state. The operator has applied for the respective license.

Action on challenges and Planned Measures from the last Review Meeting

- Greece hosted an IAEA IRRS mission in 2012

  (report publicly available)

- GAEC effective independence
  - IRRS team conclusion: GAEC is effectively independent and functionally separate from entities having responsibility or interest that could unduly influence its decision making
- Greece-IAEA agreement to support GAEC as Regional Training Centre in Europe for Radiation, Transport and Waste Safety was ratified by the Greek Parliament

Action on challenges and Planned Measures from the last Review Meeting

- GAEC Integrated Management System (IAEA GS-R-3)
  - ISO 9001:2008 the umbrella of all acquired accreditations and certifications
  - ISO/IEC 17025:
    - ✓ measurements of whole body and extremity dosimeters
    - ✓ gamma spectrometry measurements
    - ✓ radon measurements
    - ✓ calibration of detectors in the fields of radiotherapy, radiology, radiation protection and personal dosimeters
    - ✓ non-ionizing radiation measurements
  - ISO/IEC 17020 for the inspection activities performed
  - ISO 29990:2010 for the "Design, development and provision of non-formal education and training in radiation protection and nuclear safety“

Actions taken in the light of the Fukushima Daiichi accident

- Upgrade of the computer tool for atmospheric dispersion
- New staff trained
- New decision support tool (RODOS) installed
- Participation in the review process of the EU Stress Tests and in on-site visits
- On the job training of GAEC staff at US NRC (two month visit)

Planned Measures to Improve safety

- Implementation of the recommendations of the IRRS Mission
- Implementation of the proposed Action Plan
- Preparation of the follow up mission
- Further development of GAEC's Integrated Management System towards full compliance with IAEA GS-R-3
- GAEC is to consider requesting an International Physical Protection Advisory Service (IPPAS) mission for GRR-1

Current and future Challenges

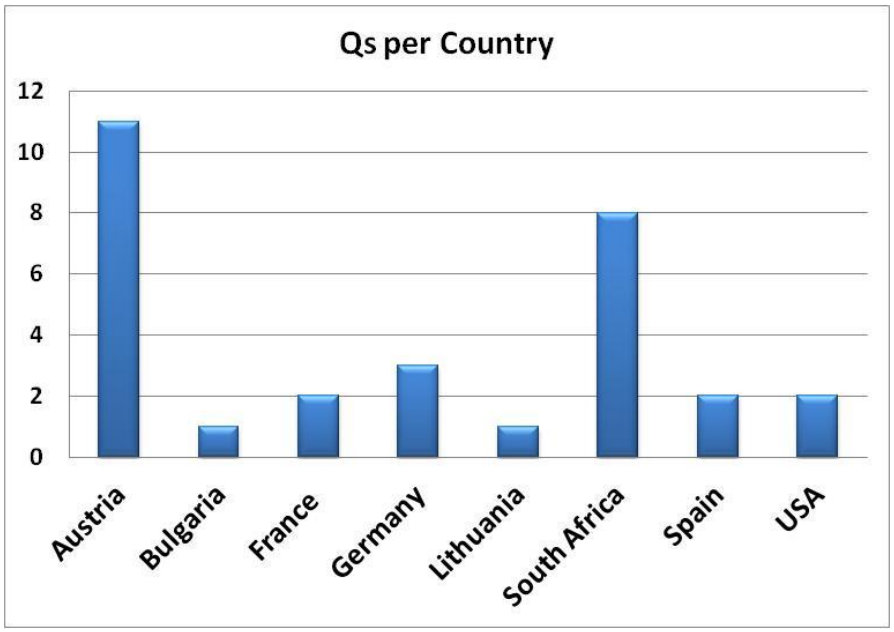
- Further promotion of Safety Culture
- Full compliance of GAEC Integrated Management System with IAEA GS-R-3 Requirements
- National Large Scale Project for population collective dose estimation

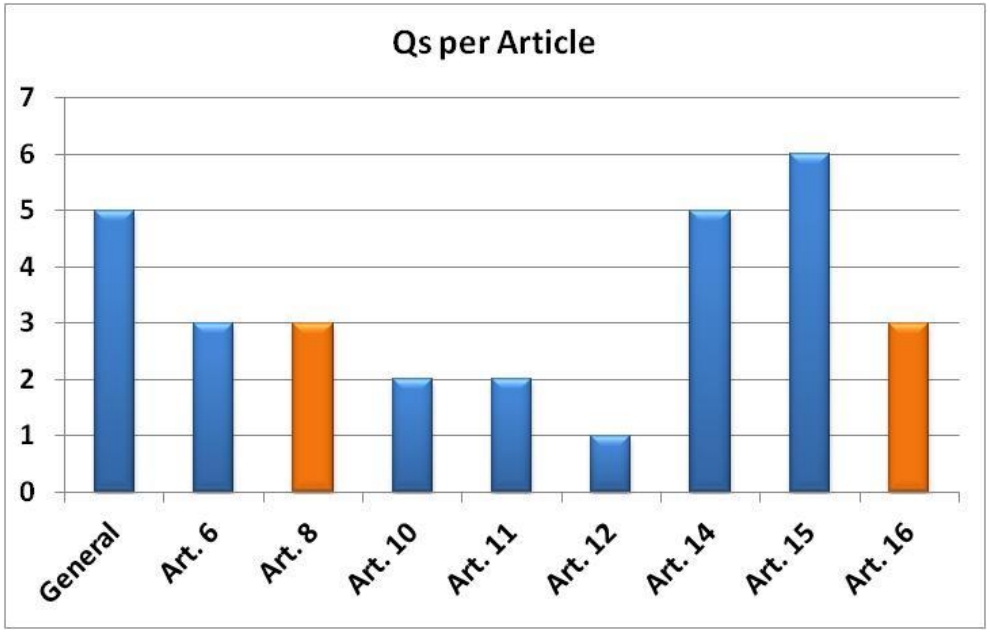
Good Practices and Efforts

- Transparency
  - Annual report excellence (IRRS report, GP3)
  - IRRS report, CNS-JC (reports, Qs-Ans)
  - All administrative acts are publicly available according to "diavgeia" (transparency) governmental programme
  - Radiological incidents: publicly available
  - Newsletter
  - Organization of public information events
  - Public information material (print, audiovisual)

Questions Raised from Peer Review of National Report

Total: 30 questions





Within the scope of the CNS

Questions Raised from Peer Review of National Report

- Article 8: Regulatory Body (within the scope of the CNS)
  - *Status of regulatory workforce and ability to replenish retiring workers*
    - Three staff persons for nuclear safety (36, 50 and 70 years old)
    - On the job training at US NRC, overlap between youngest and older staff
  - *Restrictions on regulatory board members, conflict of interest or post-appointment activities*
    - Provisions have been proposed to be included in the revision of the framework

Questions Raised from Peer Review of National Report

- Article 8: Regulatory Body (within the scope of the CNS)
  - *Supervision to regulatory body provided by secretariat for research & technology*
    - Allocation of responsibilities to General Secretariats: Common national practice
    - No supervision on regulatory decisions or the expediency of GAEC acts. Only legitimacy and administrative supervision

Questions Raised from Peer Review of National Report

- Article 16: Emergency Preparedness (within the scope of the CNS)
  - *Follow-up to issues at the regulatory body identified during response to Fukushima*
    - Additional staff trained and assigned with the duty of using the emergency codes
    - Computer tool RODOS has been installed
    - On the job training for regulating research reactors at US NRC
  - *Responsibility for education of the public*
    - GAEC is responsible for providing information to the public prior to a radiation emergency

Questions Raised from Peer Review of National Report

- General
  - *public availability of safety assessments, regulatory decisions, and CNS and IAEA mission reports*
    - General public is not involved in the regulatory decision making
    - Public has the opportunity to participate in the consultation in law/regulations making through Greek Government platforms (e.g. www. opengov.gr)
    - IRRS report and CNS national reports are published in GAEC and IAEA web pages
    - Safety evaluation of GRR-1 application will be published
  - *public consultations on safety issues, regulatory decisions*
    - as above

Questions Raised from Peer Review of National Report

- General
  - *Approach to assessment against best practices and requirements*
    - No nuclear installations, GRR-1 in extended shutdown
    - Safety re-evaluation when license expires (maximum 5 years) or when events occur or upon inspection findings
  - *Response to recommendations from IRRS mission*
    - Action plan drafted prior to the mission and revised after
    - 3 committees formed to provide proposals to GAEC Board
    - Implementation is in progress

Questions Raised from Peer Review of National Report

- Article 6: Existing nuclear installations
  - *Operational safety issues related to core conversion of research reactor, current licensing status, and restart plans*
    - No operational safety issues related to the LEU core conversion
    - GRR-1 has applied for extended shutdown license
    - Plans have not been communicated to GAEC. The possibility for reactivating the modernization project is reserved by the operator
  - *Enhancements to long term cooling of spent fuel in response to Fukushima*
    - No need for long term cooling of the spent fuel

Questions Raised from Peer Review of National Report

- Article 10: Priority to safety
  - *Suggestion to improve the graded approach in licensing activities*
    - Included in the IRRS mission recommendations and addressed within the action plan
  - *Clarification of responsibility for licensing medical applications*
    - GAEC issues the Certificate of Compliance from radiation protection point of view

Questions Raised from Peer Review of National Report

- Article 11: Financial and Human Resources
  - *Funding of regulatory body by government*
    - GAEC has not been directly affected. Government budget remains steady
    - GAEC has reduced its expenses
  - *Funding set aside for decommissioning and management of spent fuel/waste*
    - Waste management and decommissioning funding issue has not been addressed yet. It has been defined and will be addressed, as part of the radioactive waste management national program
    - GRR-1 spent fuel will be shipped back to US DOE

Questions Raised from Peer Review of National Report

- Article 12: Human Factors
  - *Addressing human factors at research reactor:*
    - in the current phase (shutdown) human factors are addressed in relation to maintenance or other works (personnel qualification, training, health condition)
    - no qualitative means for evaluation
    - shall be considered in the post-event analysis (e.g. human errors)

Questions Raised from Peer Review of National Report

- Article 14: Assessment and verification of safety
  - *Scope of current safety analysis report for shutdown research reactor*
    - The content of the submission for extended license are defined in the MD P/122/2012. SAR titles chapters are provided in our answer
  - *Safety assessment: covering all facility phases (design to decommissioning, responsibility for conduct/review)*
    - According to MD P/122/2012 safety assessment covers all stages of a research reactor lifetime
    - Review by GAEC
  - *Enforcement when verifications identify non-compliances with license requirements*
    - Suspension of license – Follow up inspection - charges before Prosecutor

Questions Raised from Peer Review of National Report

- Article 15: Radiation Protection
  - *Conduct and results of emergency exercise with neighboring country*
    - No exercise has been performed yet
  - *Doses: results for public, limits, constraints, and reference levels , and adoption of new ICRP recommendations for dose to eye*
    - Detailed information and data are provided in answers
    - In accordance with the new EC Directive 59/2013, following transposition
  - *Policy on protection of the environment/non-human species*
    - Greece aligns with relevant EU approach (EC Directive 59/2013)
  - *Management of releases to the environment*
    - Dose constraints for discharges and daily discharge limits are provided in the regulation

Updates to National Report to 6th Review Meeting

- Certification of GAEC according to ISO 9001:2008

Conclusions

- We believe that the review process will not identify areas of non-compliance with the provisions of CNS

- For Greece, the CNS is an on-going process assisting in the evolution of the nuclear and radiological safety

Thank you for your attention

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