

Purpose + Scope of Workshop / Expectations



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**Research Reactor Decommissioning Demonstration Project / R²D²P
Workshop: Preparation for Conducting Decommissioning Actions
ANSTO, Lucas Heights, Australia; 07-11 July 2011**

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Background

- **At the start of decommissioning actions everything has to be in place, ready and functioning**
- **Final actions will depend on the actual status of the facility to be decommissioned and so each case will have its own specifics**
- **Typically identification, selection and procurement (cost) of equipment and staff training are included**
- **A contractor may be used for decommissioning actions and this may differ amongst participating countries / facilities**
- **HIFAR is the model reactor for this workshop**
- **MOATA experience will be used for demonstrations as it supports HIFAR activities**



Scope of the Workshop

- Present, discuss and demonstrate the needs to be prepared for research reactor dismantling actions
- The focus will be on
 - Selection, procurement and costs of equipment
 - Use of proven equipment: Testing/demonstration
 - Training of staff
 - Have all 'Services' in place and ready, e.g. management of fuel and radioactive and non-radioactive waste / materials, radiation protection, records / documentation, conventional safety
- Show everything is in place, ready + functioning properly when decommissioning actions start
- HIFAR is the model reactor supported by MOATA
- The workshop is based on the use of a contractor
- Explain the associated regulatory issues



Purpose of the workshop

- Hold this workshop as a follow-up to the one on 'Transition' (12 - 16 November 2007)
- Explain and demonstrate all activities (see Scope) that must be ready for decommissioning actions
- Demonstrate selected systems on HIFAR / MOATA
- Explain the decision making process for involving a contractor
- To take good care of the interface between operator and contractor
- Consider 'contracting' as a model for your country
- Clarify feasibility very early (availability, funds ...)
- Prepare for the regulatory activities necessary for licensing and implementation of decomm. actions
- Prepare an overview over nat. status and progress



Expectations from the workshop

- **Participants should be able to apply the knowledge received to their national situations**
- **They should**
 - **share this knowledge with relevant colleagues**
 - **use this knowledge to take decisions at nat. level**
 - **be able to identify shortcomings at nat. level**
 - **help to overcome shortcomings, e.g. through the initiation of necessary actions**
 - **report on progress at future R²D²P workshops**
- **If necessary, request help, e.g. from IAEA**
- **Prepare a decommissioning plan (DP) for each national facility**



Provisions for decommissioning actions

- A decommissioning license, based on a DP, incl. a safety assessment has to be in place
- Main decisions on how to decommission a reactor have been made (typically during the preparation of the DP and within the licensing process)
- Major modifications would need an amendment of the license
- A vast amount of ‘services’ must be in place, e.g.:
 - Processing of radioactive waste
 - Storage and maybe disposal of radioactive waste
 - Clearance of materials, including a destination of cleared materials, e.g. reuse / recycle or disposal as non-radioactive waste at a suitable facility/site

Provisions for decommissioning actions

- Handling and transport of all types of materials
 - Documentation / records of activities / materials
 - Rad. protection: equipment, clothing, shielding
 - Ventilation / electrical installation (New?)
 - Financial resources / funding (national budget!?)
 - Regulatory supervision / enforcement
- All these issues have to be considered within the preparation for decommissioning actions
 - Please note:
 1. The actual situation at a national reactor and the national legal / regulatory situation may differ from the situation at HIFAR. This will impact on the scope of the actual work and the preparatory actions.
 2. Responsibility cannot be delegated to contractors



IAEA recommendations

- IAEA recommendations are published in the IAEA Safety Standards Series
- Relevant recommendations on the subject of the workshop can be found in various publications

Examples relevant for this workshop are given here:

- Planning for decommissioning should begin at the design stage, continued during operation and finalised at the end of operation (initial / updated / final DP)
- A DP, including a safety assessment, is the central licensing document
- No activity should be started without a license
- Proven equipment has to be used
- Qualified and trained staff has to be available



IAEA recommendations

- **The full responsible is assigned to the operator**
- **Contractors may be used to implement decommissioning actions**
- **The full responsibility will remain with the operator**
- **Responsibility cannot be transferred by contracts**
- **The operator must have the relevant competence / staff to retain control over the work of a contractor**
- **Adequate financial resources have to be available for decommissioning of a facility (early planning!)**
- **The roles and responsibilities of bodies involved need to be clearly assigned**
- **The regulator must be prepared to supervise the implementation of decommissioning actions, e.g. by regulatory inspections**

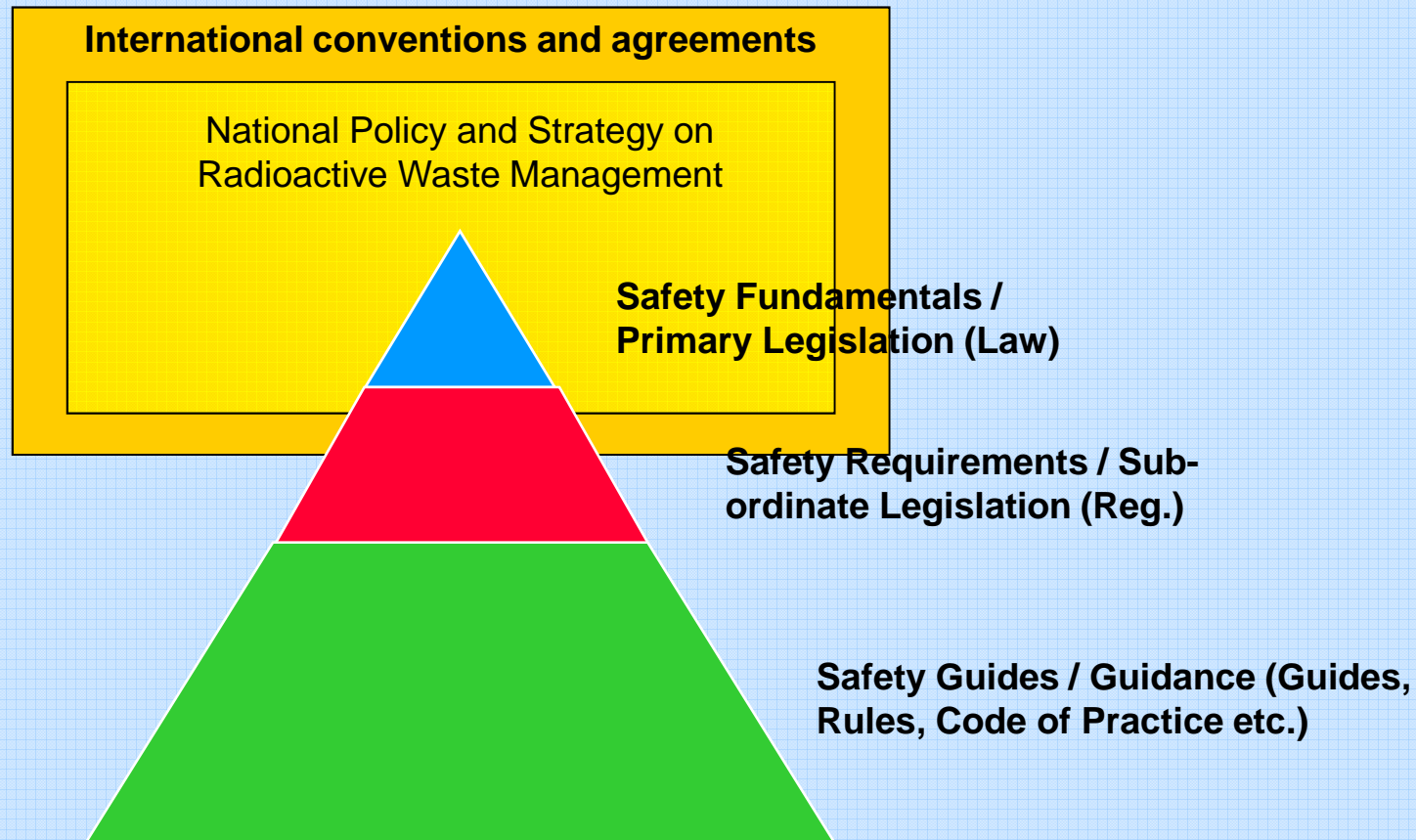


IAEA recommendations

- **The regulator must be able to enforce the legal and regulatory framework and the terms of the license**
- **Enforcement may include requesting corrective action or suspension / cancellation of a license**
- **The regulator needs to be independent from operational functions and needs to have adequate authority, competence, financial and human resources**
- **Exposures (public and occupational) shall be as low as reasonably achievable and within the limits given in relevant international recommendations**
- **An emergency plan has to be available which should be tested at an appropriate frequency**



Hierarchy of a Legal Framework / IAEA Safety Standards



References relevant for this workshop

- **Fundamental Safety Principles, IAEA Safety Standards Series No. SF-1, 2006**
http://www-pub.iaea.org/MTCD/publications/PDF/Pub1273_web.pdf
- **Decommissioning of Nuclear Facilities Using Radioactive Material, IAEA Safety Standards Series No. WS-R-5, 2006**
http://www-pub.iaea.org/MTCD/publications/PDF/Pub1274_web.pdf
- **Decommissioning of Nuclear Power Plants and Research Reactors, IAEA Safety Standards Series No. WS-G-2.1, 1999**
http://www-pub.iaea.org/MTCD/publications/PDF/P079_scr.pdf
- **Standard Format and Content for Safety Related Decommissioning Documents, IAEA Safety Reports Series No. 45, 2005**
http://www-pub.iaea.org/MTCD/publications/PDF/Pub1214_web.pdf
- **Governmental, Legal and Regulatory Framework for Safety, IAEA Safety Standards Series No. GSR Part 1, 2010**
http://www-pub.iaea.org/MTCD/publications/PDF/Pub1465_web.pdf



References relevant for this workshop

- **Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards, IAEA Safety Standards Series No. GSR Part 3 (Interim), 2011**
http://www-pub.iaea.org/MTCD/publications/PDF/Pub1465_web.pdf
- **Regulatory Inspection of Nuclear Facilities and Enforcement by the Regulatory Body, IAEA Safety Standards Series No. GS-G-1.3, 2002**
http://www-pub.iaea.org/MTCD/publications/PDF/Pub1130_scr.pdf
- **Safety Considerations in the Transition from Operation to Decommissioning of Nuclear Facilities, IAEA Safety Report Series No. 36, 2004**
http://www-pub.iaea.org/MTCD/Publications/PDF/Pub1184_web.pdf
- **Transition from Operation to Decommissioning of Nuclear Installations, IAEA Technical Report Series No. 420, 2004**
http://www-pub.iaea.org/MTCD/Publications/PDF/TRS420_web.pdf



References relevant for this workshop

- **Monitoring for Compliance with Exemption and Clearance Levels, IAEA Safety Report Series No. 67, 2012**
http://www-pub.iaea.org/MTCD/Publications/PDF/Pub1511_web.pdf
- **Lessons Learned from the Decommissioning of Nuclear Facilities and the Safe Termination of Nuclear Activities, Proc. Int. IAEA Conf., Athens, 11-15 December 2006**
http://www-pub.iaea.org/MTCD/Publications/PDF/Pub1299_web.pdf

Safety Reports in the final steps of publication:

- **Monitoring for Compliance with release Criteria for Sites**
 - Support for WS-G-5.1 (Release of Sites ...)
- **Safety Assessment for Decommissioning**
 - Support for WS-G-5.2 (Safety Assessment for Decommissioning ...)



Summary

- **The implementation of decommissioning actions requires a license which is based on a DP, including safety assessment**
- **The scope of this work will depend on the actual situation at a research reactor**
- **The main final actions before the implementation of decommissioning are related to obtaining the relevant equipment, training of staff and ensuring that all ‘Services’ are well in place**
- **The operator may involve contractors, but will remain fully responsible for all the work that is being done**
- **The regulator must be prepared and empowered to supervise the decommissioning actions**
- **Adequate financial resources need to be available**



Thank you for your attention!

