



**International Atomic Energy Agency**

# **Agency Guidance on Decommissioning of Research Reactors**

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# Definition

- **‘Decommissioning’**: The administrative and technical actions taken to allow the removal of some or all of the regulatory control from a facility.

# Reasons for Decommissioning

- **Obsolete technology or process**
- **Lack of business need**
- **Lack of support for continued operation**
- **Licensing and regulatory changes**
- **Incidents and accidents**
- **Legal and political constraints**
- **Change of site use**
- **Stakeholder pressure**

# Factors affecting national policy and strategy

- **Regulatory framework**
- **Resource aspects**
- **Reutilisation of facilities**
- **Waste management**
- **Stakeholder acceptance**
- **Safeguards**
- **Expertise**

# Management and Planning

- **Selection of the decommissioning strategy**
- **Release/clearance criteria**
- **Final survey**
- **Fuel management**
- **Planning for decommissioning**
- **Regulatory interfaces/licensing**
- **Management of plant status and change**

# Additional Issues

- **Decommissioning and waste management techniques**
- **Information exchange**
- **Costs and funding**

# Conclusions: General Management I

- **The operating organisation should establish a decommissioning project team, composed of the facility's staff and outside experts, well before final shutdown.**
- **Retained staff should be provided with retraining to ensure that corporate memory does not disappear.**
- **Regulatory bodies should be kept thoroughly informed well in advance and throughout the decommissioning project.**

# Conclusions: General Management II

- **Any contracting arrangements should ensure that that safety responsibility is not delegated but remains the responsibility of the licence holder.**
- **Fixed price work only works well for well defined pieces of work.**
- **Stakeholder dialogue is usefull and should commence before the start of decommissioning and continue throughout the project.**

# Conclusions: Planning Issues

- **While research reactor decommissioning is a well established process, a comprehensive decommissioning plan should be produced several years before final shutdown.**
- **The initial radiological characterisation of the facility should be carried out well before final shutdown.**
- **Following final shutdown, as much pre-decommissioning work as possible should be carried out to ensure a smooth and timely transition from operation to decommissioning.**
- **Early spent fuel removal and site characterisation helps to maintain staff morale.**

# Conclusions: Waste and Fuel Issues

- **Early removal of fuel from the facility will significantly reduce the radiological hazards and allow many ancillary systems to be shutdown and safeguards requirements to be reduced.**
- **All local and national requirements associated with radioactive waste management should be known and understood by all parties at the time of decommissioning planning as the decommissioning strategy will be heavily influenced by waste classification, storage, transport and end-point issues and regulations.**

# Conclusions: Technological Issues

- **A very broad spectrum of technologies is available to deal with almost all kinds of decontamination and dismantling operations.**
- **When a process or tool is being selected, due regard should be given to, amongst others, generation of secondary waste, ease of maintenance, reliability, and decontamination.**

# Conclusions: Information Exchange

- **Information and experience from other research reactor decommissioning projects should be considered and, where appropriate, incorporated into the decommissioning plan.**
- **A comprehensive post-decommissioning report on all aspects of the work carried out, including the lessons learned, should be produced to ensure that others can benefit to the fullest extent from the experiences.**

# Conclusions: Costs and Funding Issues

- Escalating costs and project overruns can be caused by insufficient thought having been given to cost estimates at the start of the project.
- An early decommissioning cost study should be carried out and regularly updated over the course of the project.
- State of the art project management techniques are applicable to decommissioning projects.