Australian Government

Australian Nuclear Science and Technology Organisation

ANSTO ‘s POLICY for MOATA & HIFAR

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Content

- Australian Nuclear Regulatory Systems
- Compare to International Recommendations
- Licencing “Transition Period”
- Major Issues
- Requirements of ARPANSA
- Progress so far.

Preparation

- Site Requirements for Decommissioning
- Collect operating information
- Learn decommissioning experiences from other countries
- Liaise with other groups for decommissioning such as Regulator and Dept of Environment
- Planning for HIFAR Decommissioning

Reference Documents

- IAEA Safety Standards Series,
- Decommissioning of Nuclear Power Plants and Research Reactors, Safety Guide No. WS-G-2.1 (1999)
- Decommissioning of Nuclear Fuel Cycle Facilities, Safety Guide No. WS-G-2.4 (2001)
- IAEA Technical Document, Planning and Management of Research Reactors and other Small Nuclear Facilities (1991).
- ARPANSA Standard Licence Conditions Related to Decommissioning (ARPANSA Licence Conditions RB-STD-26-01, Section 4.1.2)
- Safety Guide No.WS-G-21 Section 5.11

Limiting Factors

- Meeting ARPANSA's expectations
  - Decommissioning stages
  - Licensing requirements
- Waste Repository Requirements
- Low Level Waste Storage Containers
- Third parties interest

WASTE REPOSITORY?

- Specification for Waste acceptance
- Physical and chemical Composition Limits
- Waste Conditioning
- Waste Containment
- Radionuclide Fingerprint
- External Dose rate at contact (< 2mSv/hr?)
- Activity Limits (alpha-emitting nuclides 4 GBq/te?)
- Plus tables for limits on other nuclides per tonne

ARPANSA Licence

- **Required working to IAEA documentation**
- **Decommissioning Plan**
- **Safety Assessment** (Live document (IAEA))
- **Personnel Training** (Using HIFAR Staff)
- **Quality Assurance** (Using HIFAR's)
- **Safety Management** Limits and Conditions)
- **Incident Notification** (NCR etc)
- **Records** (Test results, Inspections, Inventory, doses & mod's)
- **Reporting** (Quarterly and Annually)
- **Radiation Protection** (Dose Limits etc)
- **Radioactive Waste Arrangements**
- **Security & Emergency Arrangements**

ARPANSA's Costs

Reactor 1MW or more

- **Operating controlled facility** **$707k/an (#9)**
- **Decommissioning, disposing or abandoning of a controlled facility** **$184k/an (#10)**
- **Possessing or controlling facility** **$92k/an (#8)**

Nuclear storage or disposal facility

- **Operating a controlled facility being a nuclear storage or disposal facility** **$46k/an (#19)**
- **Possessing or controlling facility** **$9k/an (#18)**

LLW Containers

- Criteria of containers
- Purchase and/or manufacture Containers
- Compaction methods
- Shielding methods within Containers
- Temporary Storage at LHS

FACTS

- **HIFAR – HIgh Flux Australian Reactor**
- **Heavy Water Cooled and Moderated Tank Reactor**
- **First Criticality on January 26th 1958**
- **10MW (Thermal) Operation 1960**
- **15 year Design Life**
- **Major Refurbishment in late 1980's**
- **Plant modifications & upgrades.**

OVERVIEW

- On the 12th January 2005 a working party was set up to address "Decommissioning at ANSTO"
- Terms of Reference were established to the working party.
- Representatives from around site,

Reactor Operations, TS & FM, Waste Operations, Safety & Radiation Science and Security

- Focus on HIFAR Decommissioning

Current best practice, as defined by IAEA documentation

- ***Stage 1***, The fuel is removed, the fluids are drained from the facility and external materials can be disconnected or removed eg, the control room and cooling towers.
- ***Stage 2***, The care and maintenance stage, where a state of monitoring and maintenance is maintained until the documentation and arrangements are in place for the third stage.
- ***Stage 3***, The decommissioning, covers the entire decommissioning process including the removal of all radioactive and other wastes.
- ***Stage 4***, The final stage called the unrestricted site use and refers to when the site is permitted to return to a green fields site or used for other purposes without restrictions being imposed.

Questions?