IAEA Workshop on the Research Reactor Decommissioning Activities:

Cost Estimates - Manila, Philippines 30 March to 3 April 2009

MEXICO: NATIONAL REPORT

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1957–2007

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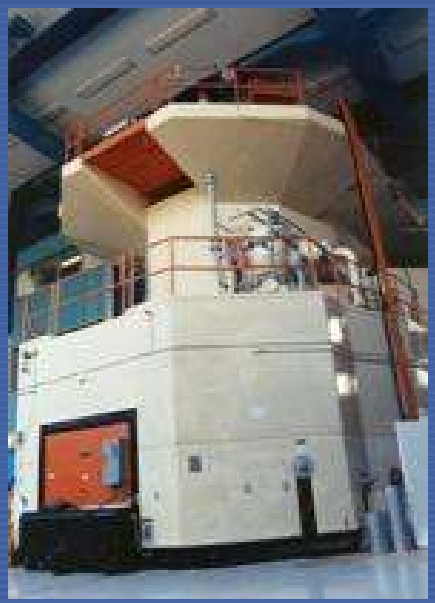
HISTORY

- TRIGA Mark III (U.S.A.)
- First criticality: November 8, 1968
- Owner: National Institute on Nuclear Research
- Operation licensee: April 10, 2014
- 40 years in operation
- Reactor core: 85 fuel elements and 4 control rods
- 29 new fuel elements y 4 control rods (storage in room)
- 64 spent fuel elements and 3 spent control rods (storage inside the reactor pool)

Reactor Description

- Type Pool and reactor core positional (movable), cooled and reflected by soft water
- The reactor operates at thermal power levels of up to 1 MW (steady operation) and has the capacity to be operated at a power peak of approximately 2,000 MW
- Applications: Activation analysis, production of radioisotopes for medicine, and training of personnel in sciences and nuclear technology



Decommissioning Plan

- Currently there is not a defined date for decommissioning the non-power reactor
- Regulatory requirements:
  - Each non-power reactor licensee shall at or about 5 years prior to the projected end of operations submit a **preliminary decommissioning plan** containing a cost estimate for decommissioning and an up-to-date assessment of the major factors that could affect planning for decommissioning.

Decommissioning Plan

- Factors to be considered in submitting this preliminary plan information include:
  - The decommissioning alternative anticipated to be used, including consideration of the requirements of 10 CFR 50.82(b)(1)
  - Major technical actions necessary to carry out decommissioning safely
  - The current situation with regard to disposal of high-level and low-level radioactive waste
  - Residual radioactivity criteria
  - Other site specific factors which could affect decommissioning planning and cost
  - Plans for adjusting levels of funds assured for decommissioning to demonstrate that a reasonable level of assurance will be provided that funds will be available when needed to cover the cost of decommissioning.

NATIONAL LEGAL FRAMEWORK

- As the non-power reactor comes from U.S.A. then it was decided to adopt the standards established by US NRC.
- For the decommissioning activities are applied the following standards:
  - 10 CFR 50.75(f)(4) Reporting and recordkeeping for decommissioning planning
  - 10 CFR 50.82(b)(1) Termination of Licensee for non-power reactors
  - 10 CFR 51.53(b) Post-construction environmental reports
  - American National Standards Institute/American Nuclear Society, ANSI/ANS 15.10 “Decommissioning of Research Reactors”, 1981.
  - U.S Nuclear Regulatory Commission, Regulatory Guide 1.86 “Termination of Operating Licenses for Nuclear Reactors”, 1974.
  - U.S Nuclear Regulatory Commission, NUREG/CR-1756“Technology, Safety and Costs of Decommissioning Reference Nuclear Research and Test Reactors”, 1983.
  - U.S Nuclear Regulatory Commission, NUREG/CR-2082“Monitoring for Compliance With Decommissioning Termination Survey Criteria”, 1981.

NATIONAL LEGAL FRAMEWORK

- **Safety Analysis Report, Chapter 17 "Decommissioning":**
  - Section 17.1.1 "Preliminary Decommissioning Plan"
  - Section 17.1.2 "Submittal of the Decommissioning Plan"
  - Section 17.1.3 "Decommissioning Alternatives"
  - Section 17.1.4 "Release Criteria and Final Survey"
  - Section 17.1.5 "Format and Content of Decommissioning Plan"
  - Section 17.2 "Possession-Only License Amendment"

IMPORTANT REMARKS

- The compliance with some IAEA documents it is mentioned in the Operations License Conditions such as:
  - Safety Series 74 "Safety in Decommissioning of Research Reactors", 1986. → IAEA Safety Guide No. WS-G-2.1 "Decommissioning of Nuclear Power Plants and Research Reactors", 1999.
- Also it is clearly established in the Operations License Conditions that the owner shall comply with any other IAEA recommendations oriented to maintain the both nuclear and radiology safety, such as:
  - IAEA Technical Report Series No. 446 "Decommissioning of Research Reactors: Evolution, State of the Art, Open Issues", 2006.

IMPORTANT REMARKS

- Last licensee renewal using the US NRC NUREG-1537 “Guidelines for Preparing and Reviewing Applications for the Licensing of Non-Power Reactors (Format and Content) [December 2000]

Thank you for your attention

¿Any questions?