

1 BRIEF INTRODUCTION ON REACTOR TRIGA PUSPATI (RTP) – MALAYSIA

RTP is a 1 MW TRIGA MARK-II research reactor that has been operating since 1982. This reactor located in Bangi, in the state of Selangor, Malaysia. At present, Malaysia is considering to deploy its first nuclear power program. Therefore, keeping the reactor operating is our top priority. Recently we changed to plate type heat exchanger, allowing the reactor power to be operated at 1 MW. The next plan is to replace the old analog control panel with digital control panel. At the moment, neither the top management nor government has shown any intention to shutdown and decommission the reactor.

2 PROGRESS OF GENERAL DECOMMISSIONING PLAN

- Current Status : The general DP has been drafted but yet to be completed (50%). The DP did not look solid and complete due to some challenges such as;
 - Important supporting document such as characterization plan & report, radiation protection plan, waste management plan, safety assessment plan etc are unavailable.
 - DP need matrix integration between the divisions in the agency. Some tasks such as waste management, radiation protection planning are dependence on other divisions.
- Key Questions (Advise from IAEA and others countries are welcomed)
 - For a country that has not shown any intention to decommission the reactor, what is the best approach to complete the DP? Should the country prepare DP before supporting documents or vice versa?
 - Referring to Romanian DP and Illinois University DP, which DP suit better for a country that will not decommission in the near future?

3 REGULATION PROGRESS

Current Status: Projected Atomic Energy Bill 201X in the final stage and expected to be approve in Q3 2011. Atomic Energy (Nuclear Installation Licensing) Regulations 201X which elaborate further provision for decommissioning is also at the final stage, and expected to be approve in Q4 2011 (after approval of Main Act).

- Waste Management Policy is under revision, taking into account the latest development of IAEA Standards and other international best practices. The Policy will be based on the statement of "The spent-fuel and radioactive wastes in Malaysia shall be managed at their minimum, according to international practices, and where applicable shall not discount the re-processing, storing in on-site storage facility or in any interim storage facility, or undertaking any other approaches that may be introduced and practices internationally in the future".

4 DECOMMISSIONING STRATEGY

Current Status: The end point & strategy has not been firmly decided and will hugely dependence on government decision as well as the availability of funding. For decommissioning plan purposes, it is assumed that;

- The end point: The reactor will be decommissioned, dismantled and the reactor hall will be decontaminated to allow the building to be re-use.
- Strategy: Deferred dismantling probably the best option at the moment. The key factors are budgetary acquisition, availability trained personnel, availability of competence local contractors, waste disposal facilities and legal obligation

5 CHARACTERISATION

Current Status: The characterization plan has been drafted. It 's only cover characterization work that is able to be conducted now. Characterization works that have been started;

- Radionuclides inventory (fuel)
- Dose mapping across the reactor hall
- Reactor coolant radionuclides analysis
- Spent resin analysis

Challenges : The characterization works are limited to simulation using computer codes, reactor coolant analysis and spent resin analysis, until the reactor is shutdown for decommissioning

6 WASTE MANAGEMENT

Current Status: The waste management plan for decommissioning is unavailable

Key Challenges:

- The waste management is under the purview of other division, which is Waste Technology Center (WasTec).
- Their main focus at the moment - upgrade the solid waste storages and waste treatment center (WTC) (these facilities could only last until 2020)
- Long term planning – They are enhancing their knowledge and looking for suitable disposal sites
- WasTec manages domestic radioactive wastes + involve in NPP planning (busy department)

7 DECOMMISSIONING TECHNOLOGY & COST CALCULATION

Current Status: PENDING due to inadequate information i.e. waste management, characterization etc.

Key Challenges:

- Lack of in depth knowledge and expertise in performing the jobs
- Beaurocracy
- The overall cost depend on selected decommissioning technology+contractors fees+waste characteristics.

8 POSSIBLE APPROACHES

Enhance capacity and capabilities in the decommissioning area of studies based on the current technologies and future strategy

- Conduct decommissioning studies & reports for selected equipments / systems such as HEX and Rx console – Learning by Doing
- Keep improving characterization study and initiate HSA
- Organize (if possible) workshop / course on general decommissioning for relevant divisions i.e Waste group + Radiation Protection group – promote the importance of DP
- Work in hands with R2D2P colleagues to solve the issues in waste management, decommissioning technology and cost calculation.

9 CONCLUSION

Since last year, there is significance progress particularly in general DP and characterization document. The Riso's workshop had positive impacts in the progress of DP in Malaysia