

PREPARATION OF DECOMMISSIONING PLAN OF BANDUNG TRIGA RESEARCH REACTOR

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Abstract: In accordance with the decision of the head of the regulatory body of Indonesia related to the decommissioning of nuclear reactors, the operator must prepare a decommissioning plan. To achieve these objectives, in last two years, the research related to the environmental assessment around the reactor building, decommissioning cost estimates, radioactive waste management and the estimation of radioactive material inventory at the beginning of shutdown conditions have been done. To support the implementation of these activities needed an expert advice, comparative study to the type of reactor that has been carrying out decommissioning and training related to decommissioning activities. These activities are part of the planned activities in the TC program in the period 2014 to 2015. Recently, the decommissioning plan of Bandung TRIGA research reactor is in the stage of completion and is expected to be completed later this year. This paper discusses the national policy and strategy related to Bandung TRIGA research reactor and the activities undertaken in preparation of the decommissioning plan of Bandung TRIGA research reactor

1. INTRODUCTION

Currently, there are three research reactors operating in Indonesia. Those are Bandung TRIGA research reactor (2000 kW), Kartini research reactor (250 kW) and Siwabessy multipurpose reactor (30MW). These reactors are operated by the National Nuclear Energy Agency (BATAN). The Bandung TRIGA reactor reached first criticality in year 1964. In 2001, the TRIGA 2000 reactor received the license operating from regulatory body until 2016. Since September 2011, the reactor operating license suspended by the regulatory body because there FFCRs have burn-up more than 50% and program retrofitting has not been done.

The government of Indonesia (BATAN) expects Bandung TRIGA reactor can be operated more safely and strongly supports the continued operation of Bandung TRIGA reactor. For this purpose, BATAN upper management has promoted marketing team and technical team for the Bandung TRIGA research reactor. The marketing team prepared the strategic plan in order to gather all potential stakeholders (academics, industry, medical application, environment surveillance). Meanwhile, the technical team has assessed the different technical options and related economical costs for bringing the Bandung TRIGA research reactor back in operation. Recently, a strategy plan of Bandung TRIGA research reactor for future activities has prepared to assure the strategy plan goals could be achieved. We planned several options to continue operating the reactors again such as procurement of fuel element standard TRIGA, utilizing existing TRIGA fuel and create new control rods without fuel elements as a substitute FFCR (fuel follower control rods) and additionally decommissioning plan should be prepared. In the implementation of this program, some experts from various countries, coordinated by the IAEA, has come to give his experience to us. Recently, the decommissioning plan of Bandung TRIGA research reactor is in the stage of completion and is expected to be completed later this year

2. RESULTS

The objective technical assessment conducted in Bandung TRIGA reactor to evaluate whether Bandung TRIGA reactor feasible to be operated or conducted for decommissioning. Accordingly, it is necessary by BATAN leaders to conduct in- depth study of Bandung TRIGA reactor, as consideration for determining the continued operation of Bandung TRIGA reactor. Results of the study:

Option-1.

Bandung TRIGA reactor resumed operations with the purchase of fresh standard TRIGA fuel elements including purchasing new FFCR. It seems this option cannot be implemented. Possibility standard TRIGA fuel elements are not produced anymore.

Option-2.

Bandung TRIGA reactor to continue operating for 1000 kW by using standard TRIGA fuel elements are still exist and replace FFCR with control rod elements without fuel follower.

Option -3.

To convert standard Bandung TRIGA reactor fuel elements into fuel plate type, such as the MTR reactor fuel. The problems to be faced in the third option is to design, create and install the core.

Option-4.

When the above three options are not feasible, then the option is implementation the decommissioning program for the Bandung TRIGA reactor. However, operated or not the Bandung TRIGA reactor

decommissioning plan should remain in progress. Recently, the decommissioning plan of Bandung TRIGA research reactor is in the stage of completion and is expected to be completed later this year.

3. CONCLUSIONS

4. The national policy and strategy related to Bandung TRIGA research reactor has been made and strategic plan of Bandung TRIGA research reactor has been proposed.
5. The decommissioning plan of Bandung TRIGA research reactor is in the stage of completion and is expected to be completed later this year.

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Country or International Organization

Indonesia

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