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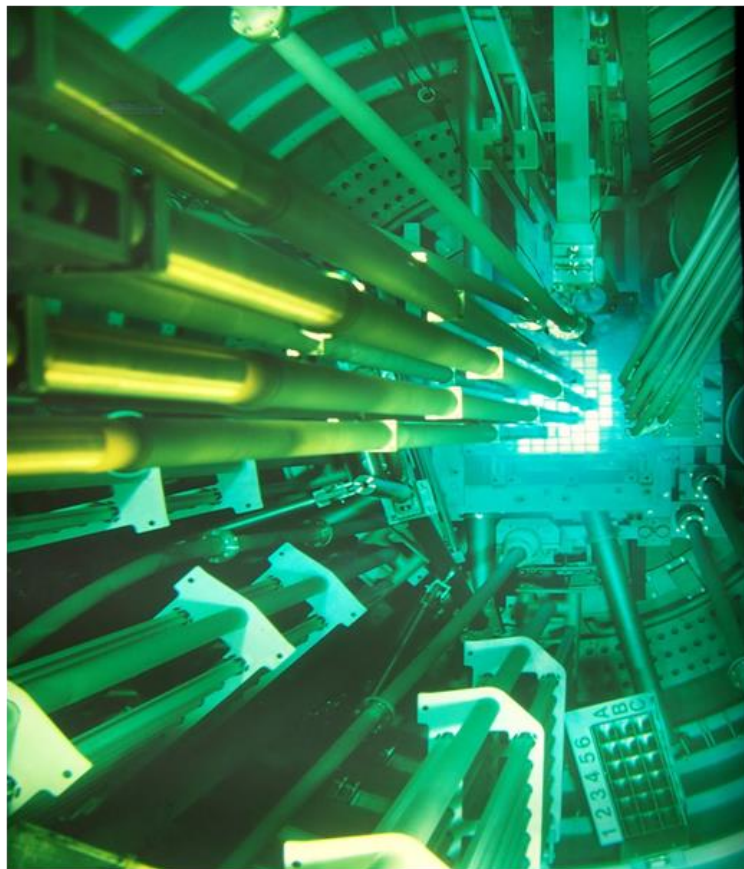
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PREFACE

Dear readers,

With great pleasure, we provide you with the second issue of the Jurnal Teknologi Reaktor Nuklir (Journal of Nuclear Reactor Technology), Tri Dasa Mega, in 2022 – Vol. 24 No. 2 (June 2022). This issue contains five articles discussing various applications of nuclear technologies and sciences.

The first article “Assessment of Radiological Impacts from Postulated Accident Conditions of HTGR: A Case Study in Serpong Nuclear Area” was written by Muhammad Budi Setiawan¹, Ihda Husnayani, Heni Susiati from the Research Center for Nuclear Reactor Technology and Safety, National Research and Innovation Agency (BRIN), Tangerang Selatan, Banten. The study about the radiological impacts of accident conditions in HTGR. This research is aimed to perform a radiological impacts assessment of two postulated accidents of HTGR, which are depressurization and water ingress accidents. As a case study, a 10-MWt pebble-bed HTGR design named Reaktor Daya Eksperimental with the planned site located in Serpong Nuclear Area. The source terms from the accident conditions were estimated using the mechanistic source term model and the dose consequences were calculated using PC-COSYMA. The input data for PC-COSYMA, consisting of meteorological, population distribution, agricultural, and local farm data, were compiled based on the site data of the Serpong Nuclear Area. The radiological impacts were assessed based on individual and collective doses.

The second article “Analysis of the RSG-GAS PPF Value Dependence on the Fuel Burnup” was written by Lily Suparlina, Purwadi Purwadi, Nabeshima Kunihiko from the Research Center for Nuclear Reactor Technology, National Research and Innovation Agency (BRIN), Tangerang Selatan. This research is focused on the Power peaking factor (PPF) has a strong relation to operation safety as well as service availability. Its value is necessary to determine by calculation since it is impossible to determine it experimentally in the core. This paper is intended to analyze the PPF values of the RSG-GAS reactor core as a function of burnup. The analysis was done using WIMSD-5B/BATAN-3DIFF computer codes. The result shows that the PPF values are significantly different for each burnup or energy in MWD. The values of axial and radial PPF are still under the safety limit and the BATAN-3DIFF code satisfyingly determines the PPF values of the RSG-GAS reactor core and supports the safety of reactor operation.

The third article “Analysis of Thorium Pin Cell Burnup of the PWR using WIMS Code” was written by Jonny Haratua Panggabean, Santo Paulus Rajagukguk, Syaiful Bakhri from the Department of Physics, FMIPA, UNIMED, Medan. They study the thorium fuel used in PWR reactor. They determined pin cell burnup using WIMSD-5B code with the new library ENDFB-VIII.0. The result of the calculation they compare to MCNP and CASMO-4 results. The actinide and fission product data sources for a typical thorium fuel are reported in the WIMSD-5B burnup calculations. The reasons for discrepancies in coding are examined and explored.

The fourth article “Safety Assessment on the Decommissioning Stage of Indonesian TRIGA 2000 Research Reactor” was explored by Ratih Luhuring Tyas, Deswandri, Dinnia Intaningrum, Julwan Hendry Purba, from the Research Center for Nuclear Reactor Technology, Research Organization for Nuclear Energy, National Research and Innovation Agency (BRIN). Their research is about safety assessment on the decommissioning TRIGA 2000 research reactor. Their study proposes a framework

to implement the safety assessment on the decommissioning of the TRIGA 2000 research reactor. The framework was developed on desk-based research and analysis. The proposed framework involves the facility and decommissioning activities, hazard identification, hazard analysis, hazard evaluation, hazard or risk control, and independent review.

The fifth article “The Assessment of the Safety Operation of RSG-GAS Reactor for Radioisotope Target Irradiation” was investigated by Iman Kuntoro, Lily Suparlina, Purwadi Purwadi, from the Research Center for Technology Nuclear Reactor, Research Organization for Nuclear Energy, National Research and Innovation Agency, South Tangerang, Banten. The paper has presented the assessment of the safety of operation of RSG-GAS reactor for radioisotope target irradiation. The aim of the assessment is to ensure safe operation and optimum utilization. The paper is intended to assess the operation safety in serving radioisotope target irradiation at its cycle operation. The assessment was carried out for core numbers 102 – 105. The result shows that excess reactivity and shutdown margin reactivity are safe to provide the target irradiation in the core for each cycle operation.

On behalf of the Jurnal Teknologi Reaktor Nuklir (Journal of Nuclear Reactor Technology) Tri Dasa Mega, I would like to thank all Editors, Reviewers, Managements, Authors, and Readers for your endless support.

Editor in Chief