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Facility Performance and Aging Review of the Interim Storage for Spent Nuclear Fuel in Indonesia

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The main function of the Interim Storage for Spent Nuclear Fuel (ISSF) in Serpong site is to store-underwater the Spent Nuclear Fuel (SNF) arising from the operation of the GA Siwabessy Multipurpose Reactor (GAS-MPR). Structure, system, and components (SSCs) of ISSF was built in 1997 and was designed by AEA Engineering, United Kingdom (UK - AEA). ISSF began to obtain operating licenses in 2008 which is valid for 10 years until 2018. In order to extend the operating licence for next decade, the operatory body have to ensure that the ISSF will be safely operated by determining the result of the facility performance and aging review. Review of the facility performance require some analysis of SSCs from nuclear installations to assess and concludes whether the SSCs would be working properly to support the function of ISSF or not. While the aging review should present determination of the latest performances and conditions of the SSCs, including evaluations of each age related to the failure or indication of significant material degradation and justification of performance, future aging process, and remaining operating life of components. The scope of this research includes review of facility performance and aging of the ISSF's SSCs. The review was conducted major in SSCs which important to safety such as liner inspection by ultrasonic detector, sipping test of the SNF to detect leakage of the cladding, corrosion study of cladding and liner material, support system performance, etc. The results show that the thickness of the liner is still 3 mm, no leakage detected of the cladding which have tested, corrosion rate is 0.002 mpy which is predicted to hold for more than 40 years operation, the water parameters are well maintained, and all the support systems are working properly as designed. From the results of the facility performance and aging review, it can be concluded that ISSF still can be used to store the spent nuclear fuel safely.

Do you wish to enter the YGE SFM19 Challenge?

Yes

Country or International Organization

Indonesia

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