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Regulatory Recommendation in Determining Adequate Emergency Planning Zone for Multi Module Small Modular Reactor in Indonesia

In recent developments, nuclear reactor design has adopted a multi-module design for small modular reactor (SMR). In this design, a single reactor unit consists of several uniform reactor modules that are placed in an adjacent location inside the reactor building with a shared structure, system, and component (SSC) between induvidual modules. This configuration causes some deviation in the safety provisions that have been established for conventional reactor. Therefore, Indonesia conducted identification and review for existing safety provisions for determining the emergency planning zone (EPZ) for power reactors. Identification and review are conducted by describing and reviewing related safety provision for power reactors in Indonesia, applicable international standards, and safety provisions from other international regulatory bodies. From the review, it was discovered that independency between individual modules is the key parameter to determine the multi-module SMR design source term and EPZ acceptance criteria. BAPETEN, as the Indonesian regulatory body, needs to ensure that there is no interconnection between individual modules. This paper also recommend BAPETEN to implement a risk-informed, performance-based approach as an additional tool to ensure that the EPZ determination also credited the technological advancement of SMR without undermining the risk level.

Country OR International Organization

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YES

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