

Evaluation of the KN-12 Spent Fuel Shipping Cask

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Abstract

The KN-12 shipping cask is a new design of a transport package intended for dry and wet transportation of up to 12 spent nuclear fuel assemblies from pressure water reactors. The cask has been designed basing on KEPCO-NETEC's requirements and evaluated as a transport package that complies with the requirements of IAEA Safety Standards Series No.ST-1, US 10 CFR Part 71 and Korea Atomic Energy Act for Type B(U)F package. The cask will be licensed in accordance with Korea Atomic Energy Act. The cask provides containment, radiation shielding, structural integrity, criticality control and passive heat removal for normal transport conditions and hypothetical accident conditions. The W.H 14x14, 16x16 and 17x17 fuel assemblies will be loaded and subsequently transported in the cask. The maximum allowable initial enrichment of the fuel is 5.0wt.%, the fuel assembly burnup is limited to a maximum average of 50,000MWD/MTU, and the fuel must have a minimum cooling time of 7 years. And, the KN-12 cask will be fabricated in accordance with the requirements of ASME B&PV Code Section III, Division 3.