



TR0700300

13th International Conference on Emerging Nuclear Energy Systems June 03-08, 2007, İstanbul, Türkiye**PRELIMINARY DESIGN of SMART FUEL****Yonghwan Kim, Dongguen Ha, Sungkyu Park, Keeil Nahm, Kyuseok Lee, Jungha Kim**

Korea Nuclear Fuel Co. Ltd, 493 Duck-Jin Dong Dae-Jeon City, Korea

E-mail: *yhkim@knfc.co.kr***ABSTRACT**

SMART (System-integrated Modular Advanced Reactor) is a novel light water reactor with a modular, integral primary system configuration. This concept has been developing a 660MWt by Korean Nuclear Power Industry Group with KAERI. SMART is being developed for use as an energy source for small-scale power generation and seawater desalination. Although the design of SMART is based on the current pressurized water reactor technology, new technologies such as enhanced safety, and passive safety have been applied, and system simplification and modularization, innovations in manufacturing and installation technologies have been implemented culminating in a design that has enhanced safety and economy, and is environment-friendly.

In this paper described the preliminary design of the nuclear FUEL for this SMART, the design concept and the characteristics of SMART FUEL. In specially this paper describe the optimization of grid span adjustment to improve the thermal performance of the SMART FUEL as well as to improve the seismic resistance performance of the SMART FUEL, it is not easy to improve the both performance simultaneously because of design parameter of each performance inversely proportional. SMART FUEL enable to extra-long extended fuel cycle length and resistance of proliferation, enhanced safety, improved economics and reduced nuclear waste.