Contribution ID: **321** Type: **not specified**

Supplementary neutronics analysis of DEMO WCLL including activity and decay heat

Monday, 17 September 2018 11:00 (2 hours)

The WCLL (Water Cooled Lithium Lead) is a European option of the breeder blanket dedicated for DEMO fusion power reactor as being developed in the frame of EUROfusion's Power Plant and Technology (PPPT) programme. The intense neutron radiation produced results in a strong activation of the breeder blanket structural elements. The activation and decay heat generation of the WCLL components need to be assessed for maintenance, decommissioning and waste management purposes and related safety analyses.
This paper presents the analyses performed within the SAE (Safety and Environment) project of EUROfusion/PPPT aimed at providing up-to-date estimates of the activity inventories and the decay heat generation in the WCLL. A detailed investigation based on a set of coupled MCNP neutron transport and FISPACT inventory calculations were performed using the 2017 WCLL MMS (Multi-module Segment) model and the FENDL-3.1 nuclear cross-section data library. Activity inventories and decay heat data were assessed for the different breeder blanket segments to take into account heterogeneity.
The paper discusses the results obtained for the activity and the decay heat as a function of the decay time after radiation and also addresses the issue of the radiation dose loads that have to be expected due to the activated components/systems.

Co-author: Dr STANKUNAS, Gediminas (Laboratory of Nuclear Installation Safety Lithuanian Energy Institute)

Presenter: Dr STANKUNAS, Gediminas (Laboratory of Nuclear Installation Safety Lithuanian Energy Institute)

Session Classification: P1