Contribution ID: **255** Type: **Oral**

Analysis of DEC-A sequences in a NuScale-like SMR considering ATF fuel performance using the system code TRACE

This analysis assesses the benefits derived from implementing FeCrAl cladding material under DEC-A sequence conditions in a NuScale-like Small Modular Reactor, utilizing the TRACE system code, in comparison to the conventional Zr alloy fuel rod case. In collaboration between NFOQUE ADVISORY SERVICES S.L. (NFQ) and the research group from the Technical University of Madrid (UPM), an in-house version of the TRACE code in which FeCrAl material properties and behavioral models code has been implemented allowing to incorporate FeCrAl cladding performance into the simulations.
The chosen accidental scenarios involve LOCA sequences combined with various failures in the Reactor Recirculation Valves, Reactor Vent Valves, and the Control Volume and Chemical System. The results demonstrate an increase in the available times and a general improvement in the behavior of fuel rods within the selected ATF concept, as opposed to the case where conventional Zr-alloy fuel rods are considered.

Country OR International Organization

Spain

Email address

jorge.sanchez@nfq.es

Confirm that the work is original and has not been published anywhere else

YES

Author: SANCHEZ-TORRIJOS, Jorge (NFQ ADVISORY SERVICES)

Co-authors: Mr MARTINEZ, Yago (Technical University Of Madrid); Mrs SOLER, Amparo (NFQ ADVISORY SERVICES); Dr CASTRO, Emilio (Technical University Of Madrid); Dr QUERAL, Cesar (Technical University Of Madrid)

Presenter: SANCHEZ-TORRIJOS, Jorge (NFQ ADVISORY SERVICES)

Track Classification: Topical Group C: Safety, Security and Safeguards: Track 8: Demonstrating SMR's Safety Case