

International Conference on Fast Reactors and Related Fuel Cycles: Next Generation Nuclear Systems for Sustainable Development (FR17)



Contribution ID: 290

Type: ORAL

Evaluation of multiple primary coolant leakages accidents in Monju with consideration of passive safety features

Tuesday, June 27, 2017 2:50 PM (20 minutes)

To maintain sodium level inside reactor vessels above cores is essential to keep core-cooling for sodium leakage accidents in loop-type sodium-cooled fast reactors. In the loop-type prototype fast reactor Monju which has three primary heat transport systems (PHTSs), a single coolant leakage accident in a PHTS has been taken into account as a design basis accident (DBA). On the other hand, it is important to investigate that another primary coolant leakage would occur after the first coolant leakage accident as a design extension condition (DEC).

In this presentation, we evaluate multiple primary coolant leakages accidents in Monju with consideration of passive safety features. Concretely speaking, the flow rate and the amount of leakages can be reduced by the effect of the decrease of the cover gas pressure due to lowering reactor coolant level (negative pressure effect). The sodium coolant level necessary for the decay heat removal can be maintained, taking account of the negative pressure effect and other measures.

Country/Int. Organization

JAPAN/Japan Atomic Energy Agency

Primary author: Mr YOSHIMURA, Kazuo (Japan Atomic Energy Agency)

Co-authors: Mr AIZAWA, Kosuke (Japan Atomic Energy Agency); Mr IKEDA, Makinori (Japan Atomic Energy Agency); Mr ENUMA, Yasuhiro (Japan Atomic Energy Agency)

Presenter: Mr YOSHIMURA, Kazuo (Japan Atomic Energy Agency)

Session Classification: 3.4 Sodium leak/fire and other safety issues

Track Classification: Track 3. Fast Reactor Safety