Safety Analysis of SMR with Passive Severe Accident Mitigation strategies - SASPAM-SA

SASPAM-SA

SNETP
Sustainable Nuclear Energy Technology Platform

Horizon Euratom project

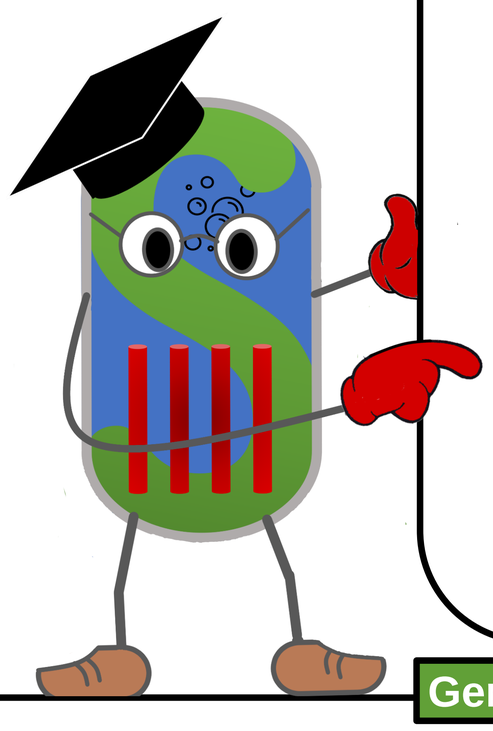
Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Commission-Euratom. Neither the European Union nor the granting authority can be held responsible for them.

Funded by the European Union

Enlit Europe 2023

ABOUT US

- SASPAM-SA project proposal has been funded in HORIZON-EURATOM-2021-NRT-01-01, “Safety of operating nuclear power plants and research reactors”
- The project has started on the 1st October 2022 and the planned duration is 48 months; the overall cost is € 4 276 038,85 and the EU Contribution is € 2 991 694,00



Key Objective

- Investigate the applicability and transfer of the operating large-LWR reactor knowledge and know-how to the near-term deployment of integral PWR (iPWR), in the view of European licensing analyses needs related to
  - Severe Accident (SA) and
  - Emergency Planning Zone (EPZ).

Key Highlights

- The applicability of large-LWR reactor knowledge and know-how to the near-term deployment iPWR, will be assessed and consolidated, in the view of SA and EPZ European licensing analyses needs;
- The research priorities will be identified in terms of methodology, code development, experimental needs;
- The knowledge gained can support Regulators in decision-making as well as Industry and TSOs in assessing the applicability of iPWR safety features.

Key Outcomes

- To be supportive for the iPWR licensing process by bringing up key elements of the safety demonstration needed;
- To speed up the licensing and siting process of iPWRs in Europe.

Generic Designs Considered

To maximize the knowledge transferability and impacts of the project two generic integral SMR design-concepts will be considered characterized by different evolutionary innovations in comparison with larger operating reactors.

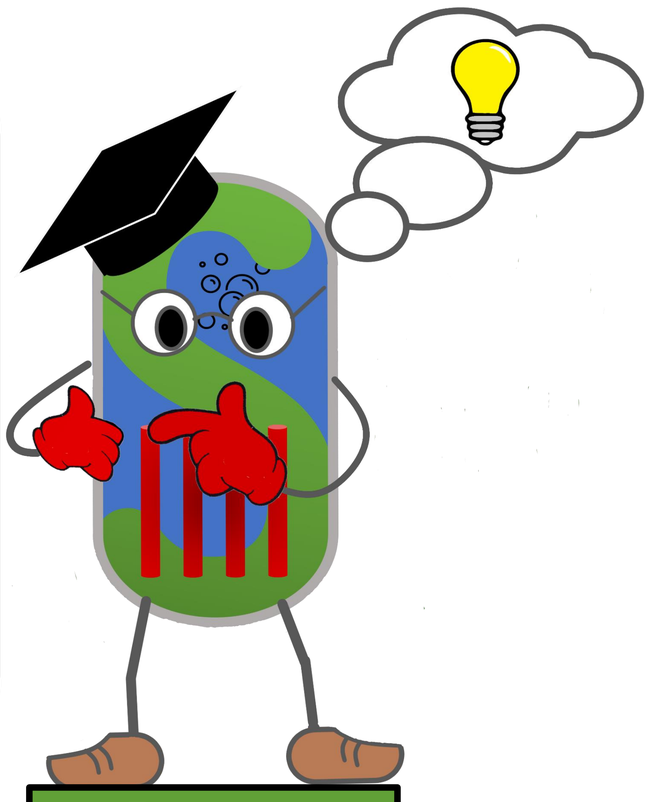
The two generic reactor concepts

- Include the main iPWR design features, considered in the most promising designs ready to go on the European market;
- Allow the assessment, in a wider way, of the code capabilities (SA & CFD) to simulate the phenomena typical of iPWR.

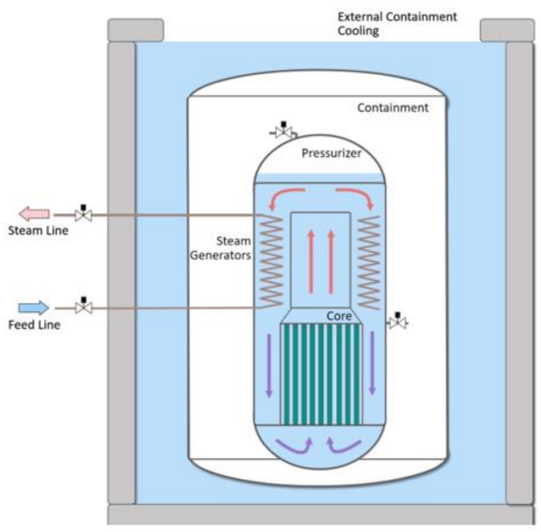
- It is not the project’s objective to assess the generic reactor designs selected

But based on the project findings

- Allow a more general statement on the code’s applicability to currently favored designs under postulated SA conditions

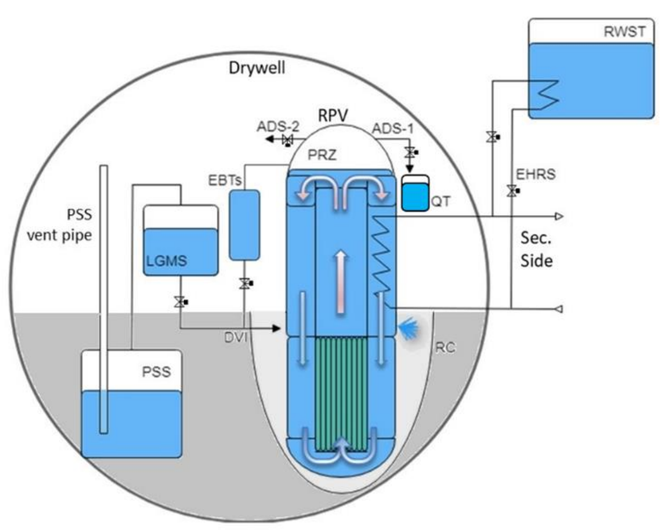


Design 1



iPWR of about 60 MWe characterized by a submerged containment

Design 2

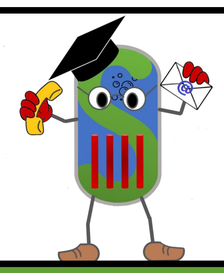


iPWR of about 300 MWe characterized by the use of several passive systems and a dry containment

Partners

ENEA · Ciemat · cnrs · EDF · JÜLICH Forschungszentrum · GRS · INRNE · IRSN · KIT Karlsruhe Institute of Technology · KTH · Lithuanian Energy Institute · Politecnico Milano 1863 · RA-TEN · Ruhr Universität Bochum · RUB · SINTEC · SSTC NRS · SÚRO · TRACTEBEL ENGIE · Sapienza Università di Roma · VTT · European Commission Joint Research Centre · Paul Scherrer Institut PSI

CORDIS · SNETP · ETSON · LINKEDIN · YOUTUBE · WEBSITE



Project Coordinator
Fulvio Mascari (ENEA)
fulvio.mascari@enea.it