Severe Accident Mitigation strategies - Severe Accident Analysis of SMR with Passive

SASPAM-SA

2024 SNETP FORUM

Horizon Euratom project

Funded by the European Union

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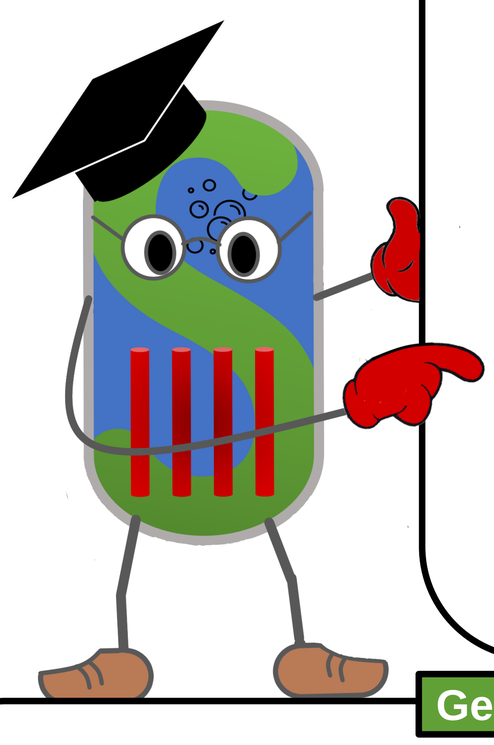
ABOUT US

- 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 4276038.85 Euros and the EU Contribution is 2991694.00 Euros.



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 Severe Accident (SA) and Emergency Planning Zone (EPZ) European licensing analyses needs.

Key Highlights

- The applicability of large-LWR reactor knowledge & know-how to the near-term deployment iPWR, in view of SA and EPZ analyses, will be assessed and consolidated.
- 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

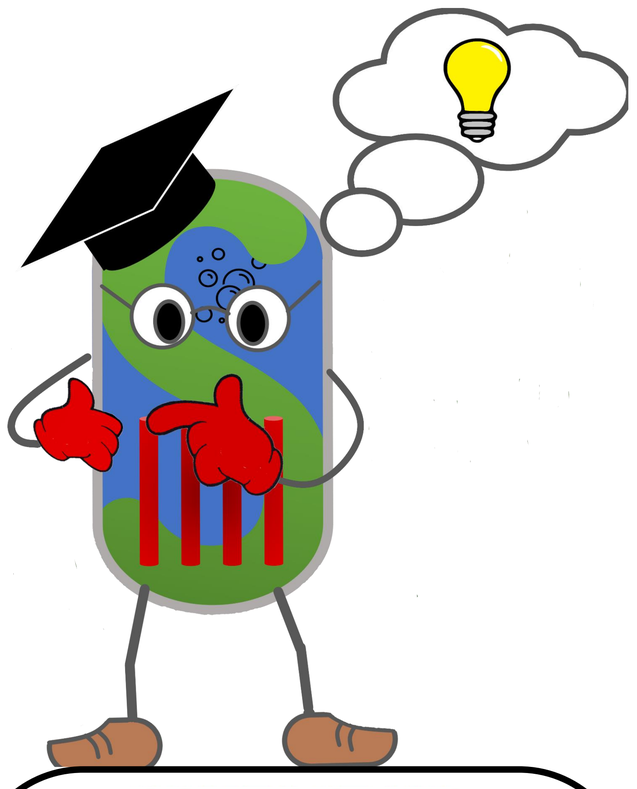
Generic designs considered

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

The two generic reactor concept

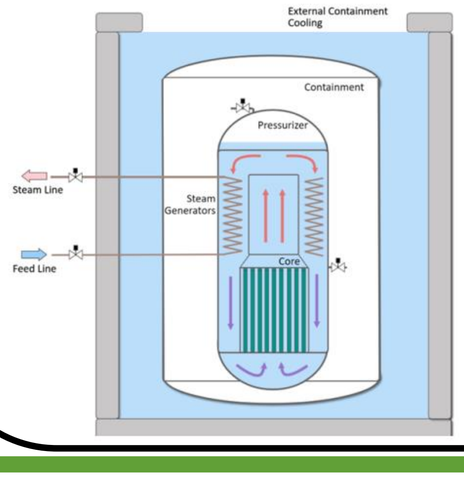
- Include the main iPWR design features, considered in the most promising designs ready to go on the European market;
- Allow to assess in a wider way the capability of codes (SA and CFD) to simulate the SA phenomena typical of iPWR.

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 condition.



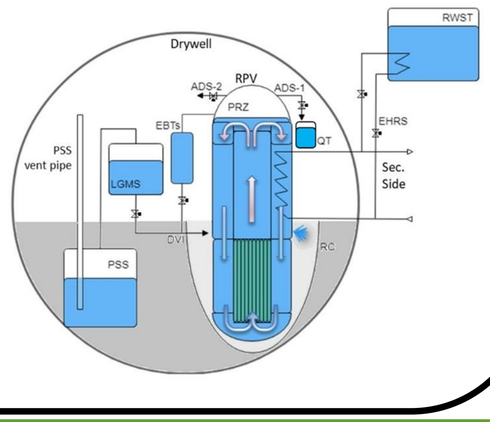
Design 1

iPWR characterized by a submerged containment and electric power of about 60 Mwe.



Design 2

iPWR characterized by the use of several passive systems, a dry containment and an electric power of about 300MWe.



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