EURAD-2 FORSAFF ACTIVITIES ON SMR WASTE MANAGEMENT

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The "FORSAFF: Waste Management for SMRs and Future Fuels" work package, part of the European Joint Programme on Radioactive Waste Management, 2024-2029 (EURAD-2), is a strategic study that started in October 2024. While there are numerous SMR (Small Modular Reactor) designs being developed globally, questions remain as to how the back end of the fuel cycle will be handled. The wide variety of fuel types and characteristics may prove challenging in assessing adequate treatment options and waste form disposability. The primary aim of FORSAFF is to identify knowledge gaps and provide recommendations for future research regarding SMR waste generation and waste management. FORSAFF will evaluate SMR waste inventories, including those related to the back end of the fuel cycle, and their main physical-chemical-radiological properties, and assess predisposal (treatment, conditioning, storage, transport) approaches and development needs in terms of anticipated waste generation across several reactor designs and operating conditions. Various disposal routes for SMR wastes will be reviewed, considering both conventional as well as more recent concepts. Finally, national policies and regulatory frameworks in the context of SMR fuel cycle and waste management will be examined as well as stakeholder perceptions and concerns. FORSAFF will deliver a Green Paper providing guidance on SMR implementation and deployment needs from the back end of the fuel cycle perspective and a White Paper identifying knowledge gaps to address future R&D activities. By integrating technical, regulatory and stakeholder perspectives, FORSAFF intends to provide beneficial recommendations for the management of nuclear waste from SMRs, thereby supporting their broad deployment.

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