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Press Release

European Nuclear Safety Regulators Complete a Joint Review of Fire Protection at Nuclear Installations, Helping to Strengthen Nuclear Safety

The European Nuclear Safety Regulators Group (ENSREG) has announced the publication of the Topical Peer Review (TPR) Summary Report on "Fire protection" at nuclear installations. This significant milestone marks the successful completion of a comprehensive joint review mandated by the Euratom Nuclear Safety Directive, amended in 2014, following the 2011 Fukushima nuclear accident, aimed at continuously improving nuclear safety across Europe.

Fire is a major risk for nuclear installations because it can damage structures and equipment simultaneously and cause the failure of systems that are important for nuclear safety. Fires can also involve radioactive materials, leading to hazardous releases, and be induced by other hazards or events and lead to flooding or explosions.

This topical peer review, supported by the European Commission, was the second to be conducted under the provisions of the Directive. The peer review involved an in-depth examination of fire protection measures covering over 120 nuclear installations, including nuclear power plants, fuel cycle facilities and research reactors across 18 EU Member States and 4 non-EU countries (Switzerland, Türkiye, Ukraine and the United Kingdom).

"The successful completion of this second Topical Peer Review is a testament to the strong commitment to nuclear safety and regulatory cooperation within Europe," stated Juan Carlos Lentijo, President of the Spanish nuclear safety regulator (CSN) and Chair of ENSREG. "By systematically reviewing how fire risks are managed, we are proactively addressing potential risks and ensuring the long-term safety and reliability of our nuclear installations. This work exemplifies the value of regional cooperation in improving the implementation of nuclear safety standards", he added.

Key Findings and Recommendations

The review's overarching conclusion confirmed that a variety of approaches and solutions are used to address fire risks amongst the participating countries. However, no critical deficiencies were found in the fire protection strategies of the reviewed installations reflecting a consistent overall framework. The review emphasized the importance of applying all levels of the defence-in-depth concept, supported by comprehensive fire safety analyses, to ensure robust fire protection. Effective fire load and ignition source management, strong leadership, accountability, and a solid safety culture were also identified as essential factors in minimizing fire risks.

The topical peer review identified both good practices and challenges at the EU level. Specific findings were presented in the main report and in the 22 individual country review reports. Amongst the areas highlighted for further attention were the need to consider new types of ignition sources such as the widespread use of lithium-ion batteries, the benefits of a common repository for sharing information on fire events across all types of installations, and the need for

guidance to help implement international standards in fire safety assessments, especially for facilities other than commercial nuclear power reactors. Good practices were noted including use of a dynamic system for managing fire loads, and implementing lessons learned from fire events in non-nuclear activities. The report acknowledges the valuable exchange and learning opportunities for regulators and operators, through both national assessments and the peer review itself.

A Transparent and Collaborative Process

The peer review process was overseen by a supervisory Board led by Sylvie Cadet-Mercier, from the French nuclear regulatory authority, ASNR. It commenced with national self-assessments based on a technical specification developed by the Western European Nuclear Regulators Association (WENRA). These assessments were peer reviewed by 42 peer review experts, complemented by site visits to five research reactors, and followed by detailed discussions at two peer review workshops held in 2024 gathering more than 130 experts from licensees, regulators and fire protection experts from Europe and further afield. The review was characterised by its transparency, with all reports being publicly available, and extensive collaboration with participating countries. Public consultation opportunities were provided during the development of the Terms of Reference and Technical Specifications, along with possibilities to participate in a Q&A process as part of a stakeholder engagement plan. A stakeholder meeting was also organised to report results of the review.

Sylvie Cadet-Mercier commented, "This peer review provided countries with the opportunity to critically assess their own fire protection strategies while also facilitating a valuable exchange of knowledge and experience at the international level. It was a rigorous and demanding exercise for licensees, regulators, and experts alike."

Next Steps: National Action Plans and Continuous Improvement

Following the release of the report, national authorities in participating countries will develop national action plans during the period 2025-2026. These plans will address the findings from both their self-assessments and the peer review, ensuring the timely implementation of safety improvement measures based on their significance. ENSREG will also formulate a plan to address the identified challenges at the EU level.

The summary report and individual country review reports are available on the ENSREG website (<u>www.ensreg.eu</u>), providing detailed insights into the findings and recommendations.

About ENSREG:

The European Nuclear Safety Regulators Group (ENSREG) is an independent, high-level advisory group created in 2007 following a decision of the European Commission. It is composed of senior officials from the national nuclear safety, radioactive waste safety or radiation protection regulatory authorities and senior civil servants with competence in these fields from all Member States in the European Union and representatives of the European Commission. Its role is to help establish the conditions for continuous improvement and to reach a common understanding in the areas of nuclear safety and radioactive waste management.

About the EU Nuclear Safety Directive:

The Euratom Nuclear Safety Directive (Council <u>Directive 2009/71/Euratom</u> as amended by Council <u>Directive 2014/87/Euratom</u>) establishes a common framework for nuclear safety in the European Union. It mandates regular peer reviews, such as the Topical Peer Reviews, to enhance transparency and ensure the continuous improvement of nuclear safety within Member States.