

EXECUTIVE SUMMARY

At the invitation of SN Nuclearelectrica in Romania, the IAEA conducted a Pre-SALTO (Safety Aspects of Long Term Operation) mission at Cernavoda Nuclear Power Plant (NPP) Unit 1 (further referred to as 'the plant') from 27 February to 7 March 2024.

Unit 1 at Cernavoda NPP, Romania's only nuclear power plant, went into commercial operation in 1996. It is one of two 700 megawatt electrical (MW(e)) pressurized heavy water reactors of the CANDU (CANadian Deuterium Uranium) 6 design at the NPP. The operator is planning to refurbish the reactor and extend the total operating lifetime to approximately 60 years.

The Pre-SALTO mission reviewed the status of activities related to long term operation (LTO) assessment of the plant against IAEA Safety Standards and international best practices. The review team consisted of two IAEA staff members (team leader and deputy team leader), six international experts, and two observers, covering all six areas of the standard scope of a Pre-SALTO mission. The team reviewed the completed, in-progress and planned activities related to LTO, including ageing management of the structures, systems and components (SSCs) important to safety and revalidation of time limited ageing analyses (TLAAs). Through the review of available documents, presentations and discussions with counterparts and other members of the plant staff, the IAEA team observed, in the field of ageing management and safe LTO, that some ageing management and LTO activities are already in compliance with IAEA safety standards and other topics are planned to be addressed in upcoming years.

The team found the plant staff to be professional, open, and receptive to suggestions for improvement. The mission team observed that plant management is committed to improving plant activities for LTO. Walkdowns showed the plant to be in good condition. In addition, the team noted one good practice and several good performances including the following:

- The plant has established partnerships with high schools, trade schools and universities including knowledge and skill development for high school students as well as internships and scholarships. The plant has utilized these approaches to proactively provide a pipeline that supports future staffing needs.
- The plant implemented a sound programme for managing the ageing of steam generators, including design modifications for improved access and assessment of the condition.
- The plant implemented a well-established database for cable management. This database facilitates the configuration management and safety assessments that affect cable systems.

The team recognized that the plant's intention is to follow the IAEA Safety Standards in preparation for safe LTO. There are some areas which should be improved to reach the level of IAEA Safety Standards and international best practices. 11 issues were raised, including the following:

- Ageing management review (AMR) process is not fully developed for mechanical, electrical and I&C components.
- The plant programmes credited for equipment qualification are not comprehensive.
- AMR of civil structures is not systematically performed.

A summary of the review was presented to the plant management during the exit meeting held on 7 March 2024. The plant management expressed a determination to address the areas identified for improvement and indicated their intention to continue cooperating with the IAEA on the review of progress in preparing the plant for safe LTO and to invite a SALTO Mission in the future.