

## EXECUTIVE SUMMARY

Upon the invitation of Eletrobras Eletronuclear, Brazil, a peer review mission on safe long-term operation (SALTO) was provided to review programmes/ activities of Angra Nuclear Power Plant Unit 1 (“the plant”).

The design lifetime of this Westinghouse plant is 40 years. The plant was commissioned in 1985. Brazilian regulatory authority CNEN issued a 40-year-period license till 2024 for the plant in accordance with the rule CNEN NE-1.04.

The target of the plant is to follow US NRC requirements for licensing renewal and be consistent with the IAEA recommendations for long term operation (LTO).

The mission reviewed completed, in-progress and planned plant activities related to long-term operation (LTO) including activities involving the ageing management of systems, structures and components (SSCs) important to safety and revalidation of time limited ageing analysis (TLAA).

Through the review of information obtained from available documents, programmes, presentations, and discussions with counterparts and other members of the plant staff, the IAEA team found that the plant has initiated activities for long-term operation preparation soon enough to be ready for LTO in time. Based upon the observations of this SALTO review, the team concluded that the plant has yet to complete a significant part of the activities important for safe long-term operation and the majority of activities are in an early phase.

The SALTO team concluded that plant management is committed to improving plant preparedness for LTO. In addition, the team noticed the following good practice:

- Technological obsolescence management.

Taking into account the above mentioned points, the team recognised that the plant approach and preparatory work for safe long term operation generally followed the IAEA Safety Standards and international practices.

The team identified areas for further improvement. Eleven issues were raised:

- The plant initiated activities on LTO but did not develop overall framework documents on the LTO project and on the plant policy.
- Preparation of the scoping and screening process for the LTO evaluation is at the beginning stage, and extensive efforts will be necessary to establish a complete scoping and screening process.
- The effectiveness of the existing and proposed programmes to manage ageing of SCs within the scope of LTO has not been sufficiently evaluated to demonstrate the appropriateness of these programmes for safe LTO.
- Scoping of non-safety related mechanical and civil SCs whose failure could affect the function of safety-related components, has not been performed using a documented and verifiable methodology to identify spatial interactions.
- It is not clear which part of the project will be performed by the plant, which will be done by contractors and how the necessary knowledge will be transferred to the plant.

- The plant has not developed and implemented a comprehensive environmental qualification (EQ) programme.
- Several databases are considered for assessment of the SCs in a scope for LTO but the process to assure data consistency between databases is not clearly defined.
- There are no inspection procedures and ageing management programmes for concrete structures.
- Civil structures have not been defined at the component level or as commodity groups.
- There is a lack of adequate long term staffing plan for the LTO programme.
- A systematic approach for competence and knowledge management is not implemented to support the plant LTO.

A summary of the review was presented to the plant management during the exit meeting held on 13 November 2013. The plant management expressed a determination to address the areas identified for improvement, and indicated the intention to invite another “Pre-SALTO peer review mission” in November 2015 to continue the review of the plant preparation for long term operation. This mission will also review progress in solving issues raised during this mission.

Appendix III of this report includes the team’s detailed recommendations and suggestions arising from this mission.