EXECUTIVE SUMMARY

At the invitation of the Government of Brazil, the IAEA conducted a SALTO (Safety Aspects of Long Term Operation) mission at Unit 1 of the Angra Nuclear Power Plant (NPP) from 4 to 13 June 2024.

Angra NPP Unit 1 (further referred to as 'the plant') has been in operation since 1985, it's operation licence is valid until the end of 2024. In 2019, the plant operator, Eletronuclear, submitted a license renewal application to the nuclear regulatory authority (CNEN, Brazilian National Commission of Nuclear Energy) to operate the plant for 20 more years.

The 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 four observers from Argentina, Bulgaria, Finland, Japan, Korea, the Netherlands, Slovakia and the USA. The review covered the standard scope of a 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 preparedness for safe LTO that most of the ageing management and LTO activities are already in alignment with IAEA Safety Standards, while some activities are still in progress.

The team found the plant staff to be professional, open and receptive to proposals for improvement. The mission team observed that plant management is committed to improving plant preparedness for LTO. In addition, the team noted a good practice and several good performances. The following are the most important:

- The confirmation process to regularly evaluate and improve ageing management programmes.
- A software tool developed by the plant to determine opportunistic inspections of components.
- Use of artificial intelligence to provide temperature data for more accurate determination of qualified life of plant components.

The team recognized that the plant's intention is to consider the IAEA Safety Standards in preparation for safe LTO. The team identified 9 areas for further improvement, the most significant ones are that the plant should consider:

- Consistently addressing and implementing all ageing management programme attributes for civil structures.
- Improving the process of temporary design modifications for LTO.
- Implementing a comprehensive equipment qualification programme.

A summary of the review was presented to the plant management and the regulatory body representative during the exit meeting held on 13 June 2024. The plant management expressed a determination to address the areas identified for improvement and confirmed the intention to invite a SALTO Follow-up Mission to Angra Nuclear Power Plant Unit 1 to be conducted in 2026.