EXECUTIVE SUMMARY

At the invitation of Eskom the IAEA conducted a SALTO (Safety Aspects of Long Term Operation) mission at the Koeberg Nuclear Power Plant (NPP) (further referred to as 'the plant') from 22 to 31 March 2022.

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 two observers, covering all six areas of 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 that despite many challenges, the plant has addressed the most important deviations in ageing management activities and preparation for safe LTO since the Pre-SALTO mission in 2019, however many activities are still in progress to achieve full compliance with IAEA Safety Standards. The SALTO team encouraged the plant management to facilitate implementation of all remaining activities for safe LTO.

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. Walkdowns showed the plant to be in good condition. In addition, the team noted the following good performances:

- An integrated corrective action programme to extensively consider operating experience for LTO.
- A template to collect vital importance parameters from the original equipment manufacturers (OEM) to establish the extended qualified life of electrical components.
- The so-called capability index applied to characterize health, attitude and other enablers of staff members to qualify if they are fit to perform a task.

The team recognized that the plant's intention is to follow the IAEA Safety Standards in preparation for safe LTO. The team identified several areas for further improvement. Fifteen issues were raised:

- Management of the LTO programme is not effective to timely complete all actions to prepare for LTO.
- The safety analysis report (SAR) has not been adequately updated for LTO and ageing management.
- Completeness and consistency of scope setting of SSCs for ageing management and LTO are not ensured.
- The plant programmes are not comprehensively reviewed and implemented for LTO.
- Information used for ageing management review (AMR) of mechanical SSCs is not consistently managed and documented.
- Ageing management programmes (AMPs) for mechanical SSCs are not complete.
- The plant has not completely implemented a comprehensive cable ageing management programme.
- The plant has not revalidated environmental qualification for some SSCs for LTO.
- Electromagnetic compatibility has not been completely assessed.
- The plant has not revalidated the environmental qualification of qualified cables for LTO.

- A proactive approach to technological obsolescence management is not fully implemented.
- The plant has not comprehensively revalidated the TLAAs for concrete structures.
- Containment structure monitoring system is not fully functional.
- Ageing management programmes for civil structures are not fully developed and implemented.

A summary of the review was presented to the plant management during the exit meeting held on 31 March 2022. The plant management expressed a determination to address the areas identified for improvement and indicated their intention to initiate the invitation of a 'SALTO Peer Review Follow-up Mission to Koeberg Nuclear Power Plant' to be conducted in 2024.