

## EXECUTIVE SUMMARY

Upon the invitation of the Comision Federal de Electricidad (CFE), a Pre-SALTO peer review mission on safe long term operation (Pre-SALTO) was provided to review programmes/activities of the Laguna Verde Nuclear Power Plant Unit 1 and 2 (further referred as “the plant”).

The administrative address of the plant is Central Nucleoelectrica Laguna Verde, Carretera Cardel – Nautla Km. 42.5, Alto Lucero, Veracruz CP 91680. The plant is located on the eastern coast of Mexico. The plant is a dual unit facility. The nuclear reactor system for each plant unit includes a single-cycle, forced circulation, General Electric boiling water reactor (GE BWR Type 5), housed within GE Mark II containment. Each plant reactor was originally licensed to a core thermal power of 1,931MWt. When the power uprate is fully implemented, the licensed power level will be 2,317 MWt for each unit, corresponding to an electrical generation output of 810 MWe. CFE is a public utility which is owned by the Federal Government of Mexico. CFE is the licensed operator of the plant both units.

The plant started its commercial operation in 1990 for unit 1 and 1995 for unit 2 respectively. The plant unit 1 license expires on July 24, 2020. The plant unit 2 license expires on April 10, 2025. CFE requests renewal of the operating licenses for the plant, for a period of 30 years beyond the expiration of the current licenses. One of the plant strategic objectives is the “Long Term Operation through two main projects: The License Renewal and Life Cycle Management”.

This Pre-SALTO mission reviewed the status of the plant activities for safe LTO assessment. A preparatory meeting was held in September 2014. The scope of the Pre-SALTO mission was agreed on and defined in the Terms of Reference issued in September 2014. The review team was organised accordingly; it comprised two IAEA staff members, six external experts and two observers covering all disciplines stated in the Terms of Reference.

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

Through the review of available documents, including the Advance Information Package and other plant documents, presentations and discussions with counterparts and other members of the plant staff, the IAEA team concluded that the plant has worked extensively in the field of long-term operation and ageing management. License Renewal and Life Cycle Management projects are covering many topics as recommended by IAEA. Based upon the observations of this Pre-SALTO review, the team finds good progress in preparation for the long-term operation of the plant. The team has found the plant staff professional, open and very receptive to suggestions for improvement. Walk-downs showed that the power plant is in a good condition.

The Pre-SALTO team concluded that plant management is committed to improving plant preparedness for LTO.

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

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

- Project strategy, tasks, responsibilities, organization and coordination concerning the implementation of LTO project are not appropriately defined;
- Organizational arrangement for improvement of ageing management at the plant after LR evaluation is not adequate;
- Scoping and screening process at the plant does not assure that all SSCs are in the scope for evaluation for LTO;
- Existing plant programmes relevant for LTO are not adequately enhanced for LTO;
- The ageing management review is not properly supported by a condition assessment of all in-scope SCs;
- The plant does not have documented approval of all documents prepared by contractors that support their LTO programme.
- The proactive part of the obsolescence programme is not in place yet;
- Operating experience from the whole operational history of the plant was not considered for LTO;
- There is no temperature monitoring programme in place at the plant to identify hot spots, which can demonstrate that operational temperatures for the Systems and Components (SCs) in the Equipment Qualification (EQ) programme do not exceed the temperatures used in the calculations for qualified life;
- Ageing management of containment suppression pool and associated components is not effective;
- The Ageing Management Review (AMR) tables do not cover evaluation for all known ageing effects and do not designate the most stringent AMP for managing the ageing effects;
- Visual inspections of containment liner plate, penetrations, and concrete before Integrated Leak Rate Tests (ILRT) and at periodic intervals in between the ILRT were not performed;
- Many AMPs, which are identified by License Renewal (LR) evaluation as important for managing ageing, are currently not implemented.

A summary of the review was presented to plant management during the exit meeting held on 18 March 2015. Plant management expressed a determination to address the areas identified for improvement, and indicated its intention to invite a “SALTO peer review mission” in March 2017 to complete the review of the plant preparation for LTO.

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