

## EXECUTIVE SUMMARY

At the invitation of the Government of Bulgaria the IAEA conducted a Pre-SALTO (Safety Aspects of Long Term Operation) mission at Unit 6 of the Kozloduy Nuclear Power Plant (NPP) from 18 June to 27 June 2018.

Kozloduy NPP is operated by Kozloduy NPP Plc. Unit 6 started commercial operation in 1991. In October 2009 the Bulgarian Nuclear Regulatory Agency (BNRA) renewed the unit's operation until October 2019. The design lifetime of Unit 6 will expire in 2021. If the Licensee intends to operate the unit after the design lifetime, they are obliged to fulfil the following licensing conditions:

1. submit a Safety Analysis Report demonstrating the operability of the systems, structures and components beyond the design lifetime,
2. perform a Periodic Safety Review,
3. perform a comprehensive study of the actual condition of plant equipment and
4. meet the conditions of the current operating license for Unit 6 of Kozloduy NPP.

This Pre-SALTO mission focused on the status of activities for the Long Term Operation (LTO) assessment of the plant. The review team consisted of two IAEA staff members (Team Leader, Deputy Team Leader), five external experts and four external observers, covering five areas of the standard scope of a SALTO mission (review of Area F *Human resources, competence and knowledge management for LTO* was not requested by the plant).

The team reviewed the completed, in-progress and planned activities related to LTO, including Ageing Management (AM) of the Systems, Structures 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 assessed progress in the field of ageing management and preparedness for safe long-term operation. The LTO project of the plant addresses most of the topics as recommended by the IAEA. Some activities are still in implementation and some are fully completed. Based upon the observations of this Pre-SALTO mission, the team found good progress in the field of ageing management and preparedness for safe long-term operation.

The team found the plant staff to be professional, open and receptive to suggestions for improvement. Walk-downs showed that the plant is in good condition. The mission team observed that the plant management is committed to improving plant preparedness for LTO.

In addition, the team found several good performances, including the following:

- The PLEX Navigator, a software application developed by the plant that represents the scale, structure and phases of implementation of the Plant Life Extension (PLEX) project and links these to the LTO documentation stored in the plant's database SmartDoc;
- Ageing Management Programme for buried pipelines;
- Extensive condition assessment for all civil structures.

The team found areas which should be improved to reach the level of international good practice. Nine issues were noted:

- The organizational roles and responsibilities for the LTO programme are not clearly defined;

- Integrated evaluation of all available data for in-scope SSCs is not in place to adequately manage ageing effects;
- The methodology for scoping does not ensure that all SSCs relevant for LTO are within the scope;
- The ageing management review and ageing management programmes are not fully implemented;
- Revision of TLAAs is not complete nor completely documented for SSCs in the LTO scope;
- Identification of ageing effects and degradation mechanisms is incomplete;
- The newly developed proactive obsolescence management programme is not completely implemented;
- The scope of SSCs for ageing management of electrical and I&C components during the LTO period is incomplete;
- Degradation mechanisms acceptance criteria and their applicability for some ageing effects are not complete.

A summary of the results was presented to the plant management during the exit meeting held on 27 June 2018. The plant management expressed a determination to address the areas identified for improvement, and indicated their intent to invite a ‘SALTO Peer Review Mission to Kozloduy Nuclear Power Plant’ in June 2020.