ENSREG
European Nuclear Safety Regulators Group

ENSREG 1st TOPICAL PEER REVIEW

NATIONAL ACTION PLAN OF THE SLOVAK REPUBLIC

ON AGEING MANAGEMENT

FINAL REPORT

NUCLEAR REGULATORY AUTHORITY
OF THE SLOVAK REPUBLIC

Bratislava, Slovak Republic, December 2023

OBSAH

0 ACRONYMS

AMP	Ageing Management Programme
EBO	Bohunice NPP units 3&4
EMO	Mochovce NPP units 1&2
MO34	Mochovce NPP units 3&4 – in operation/under construction
ESW	Essential Service Water
EU	European Union
NAcP	National Action Plan
NPP	Nuclear Power Plant
OAMP	Overall Ageing Management Programme
PSR	Periodic Safety Review
SSC	Structures, Systems and Components
SE a.s.	joint stock company Slovenské elektrárne
TPR	Topical Peer Review
ÚJD SR	Nuclear Regulatory Authority of the Slovak Republic

1 INTRODUCTION

The National Action Plan (NAcP) has been prepared in the frame of first Topical Peer Review (TPR), which arises from the European Union's Nuclear Safety Directive 2014/87/EURATOM of 8 July 2014 amending Directive 2009/71/EURATOM on the establishment of a Community framework for the nuclear safety of nuclear installations of the European Union. The directive requires Member States of the European Union to conduct the TPR every six years with the first evaluation in 2017. The "Ageing Management" has been decided as the topic for the first TPR.

Before the NAcP, a self-assessment of ageing management of NPPs in Slovakia was carried out, which is documented in the National Assessment Report (NAR).The NAR was prepared in 2017 by Nuclear Regulatory Authority of the Slovak Republic (ÚJD SR) in close cooperation with the joint stock company Slovenské elektrárne, a. s. (SE, a. s.), based on relevant legislation and documents supplied from SE,a.s.

This NAcP was written in accordance with the Council Conclusions of the 18 March 2019 and the ENSREG decision of the 25 March 2019, stating that countries who participated in the 1st TPR process should deliver their NAcPs for Nuclear Power Plants and Research Reactors by the end of September 2019. ENSREG in November 2019 approved the ENSREG 1st Topical Peer Review Action Plan with the objective that each regulator will develop and make public its NAcP by the end of September 2019 for the related nuclear power plants and research reactors. For the other nuclear installations , to report by the end of 2020 (or already in September 2019 on a voluntary bases). In accordance with the Board recommendation and ENSREG decision, Slovakia decided to report on AMP of the Interim Spent Fuel Storage located at the Bohunice site and operated by JAVYS a.s. (/3/).

Updates of the NAcP were due at the end of 2021 and 2023,respectively.

2 EXECUTIVE SUMMARY

The writing of NAcP was coordinated by UJD SR and the plan was prepared after the TPR process was finished. The NAcP is based on outcomes of the TPR process. The NAcP was subjected to commenting procedure and comments were asked from the licensees and UJD SR's staff members. The NAcP was delivered to the ENSREG and published at the both ENSREG's and UJD SR's websites after its finalization.

This update is the final report on the implementation of the original NAcP. The report aims to demonstrate the progress in the implementing measures in relation to the identified findings to improve safety. The updating was performed in second half of 2023. The reported status is presented in the Table below and it corresponds to the status of December 2023.

The previous 2021 update /4/ of the NAcP included information on the implementation of all findings identified during the TPR I. There were only two open actions. One refers to the update of ageing management database, and the second one is related to developing ageing management programmes (OAMPs) during long construction periods and extended shut downs. All these actions have been finalised in 2023 hence the implementation of the NAcP is considered completed. The progress in implementation of the actions was monitored and their completion was reviewed in UJD SR inspections (see table).

The Topical Peer Review met the generic goals and objectives set out in the Directive and in the ENSREG Terms of Reference. The peer review enabled Slovakia to review its Ageing Management Programmes, share information and experience with other countries and provided opportunity to develop appropriate follow-up measures to further enhance safety. The aging management will be further reviewed within the periodic safety reviews performed in 10 years intervals which will provide further opportunity to review and when necessary update the ageing managemnts programs at nuclear installations.

3 REFERENCES

/1/ National Assessmenr Report of the Slovak Republic for the Purposes of Topical Peer Review on “Ageing Management” under the Nuclear Safety Directive 2014/87/EURATOM, December 2017

/2/ European Nuclear Safety Regulator's Group - ENSREG - 1st Topical Peer Review - "Ageing Management" – Country specific findings, October 2018

/3/ European Nuclear Safety Regulator's Group - ENSREG - 1st Topical Peer Review - National Action Plan of the Slovak Republic on Ageing Management, September 2019

/4/ European Nuclear Safety Regulator's Group - ENSREG - 1st Topical Peer Review - National Action Plan of the Slovak Republic on Ageing Management, December 2021.

4 SUMMARY OF THE PLANNED ACTIONS AND THEIR IMPLEMENTATION

The table contains the planed actions for NPPs in operation/under construction in Slovakia, associated deadlines and status of their implementation based on the monitoring done by the national regulator – UJD SR.

Installation	Area	Finding	Planned action	Original deadline	Regulator's approach to momitoring	Status, December 2023
EBO	OAMP (self assessment)	Shortcomings in SSC drawing documentation in relation to the actual condition of the ESW system	Add and update missing drawing documentation	31. 12. 2020	Performance of regulatory inspection to verify the progress and task fulfillment	The "as buit" drawings of pipelines were made for the purposes of ageing management and determination of the actual conditions of the Essential Service Water (ESW) pipelines in the main production building (reactor building) for each unit. The wall thickness measurements of the ESW pipeline components were performed on selected components. Results of measurements did not indicate the thickness wall degradation during NPP operation exceeding the design criteria. Completed. The measure is considered closed based on the progress made.
EBO EMO	OAMP (self assessment)	Non-continuous update of the ageing management database to reflect the actual condition of the SSCs and related knowledge	Modification of the ageing management database to allow more efficient use of data collected in the ageing management process and to reflect the actual condition of SSCs and current knowledge	31. 12. 2023 (both NPPs)	Performance of regulatory inspection to verify the progress and task fulfillment	Investment plan and other organisational measures have been adopted by the licensee to implement the measure. Structure of the ageing managemnt database has been upgraded and used data updated to reflect the actual conditions of SSCs and current knowledge of AMP. Currently, after the modification, the database structure "SSC ageing management at NPP in SE a.s." enables more effective use of the data recorded in the ageing management process. Completed for both NPPs in December 2022. The measure is considered closed based on the progress made. (I tis also part of PSR actions.)

EBO EMO MO34	OAMP (TPR Review)	During long construction periods or extended shutdown of NPPs, relevant ageing mechanisms are identified and appropriate measures are implemented to manage any incipient ageing or other effects	In order to achieve progress in identifying degradation mechanisms and managing ageing effects for projects of delayed construction and extended shutdowns, the licensee shall revise the OAMP as well as the existing AMPs	31. 12. 2021	Performance of regulatory inspection to verify the progress and task fulfillment	**a) Long construction period** Within the completion of the MO34, the requirements related to SSCs ageing management were taken into account at all design stages. This was done as a part of the revision of the initial design and also by developing safety concepts for the most commonly occurring degradation mechanisms. These concepts included the specifics of the MO34 design and experience from the implementation of the AMP at the EBO and EMO. Specific procedures were implemented for individual SSCs (e.g. RPV surveillance program, monitoring of the thermal ageing of primary circuit materials, monitoring of loop corrosion processes in primary circuit materials, etc.). These specific procedures were continuously reviewed and updated and/or complemented considering the suplly chain during extended construction period. Completed in July 2023. The licensee has revised and implemented the OAMP/AMP for delayed constructions. The measure is considered closed based on the progress made. **b) Extended shut down** Extended shut down is understood as when the duration of the shutdown is greatly extended beyond what was originally anticipated (for more than one year owing to e.g. unforeseen issues or delays in the return to service) but this does not include regular shutdown for maintenance. All ageing management programs (including OAMP) for SSCs have been revised/updated and implemented to reflect the expectation on ageing management during extended shut down. Completed in July 2023. The measure is considered closed based on the progress made.