Authority for Nuclear Safety and
Radiation Protection

National Action Plan on Ageing Management National report of the Kingdom of the Netherlands

2nd Update, December 2023

Abstract

This 2023-update of the National Action Plan (NAcP) on Ageing Management (AM) contains the information on the progress on the actions listed in the 2021 edition of this report.

All actions to be addressed by the licensees have been completed. There remain only three actions for the regulatory body ANVS, and these have no direct impact on nuclear safety. Completion of one action is foreseen in the first half of 2024. The other two will be implemented in 2025/2026, during a planned licence renewal.

This will be the last update of the NAcP on Ageing Management. Progress and completion of the remaining actions on the part of the ANVS will be documented in the upcoming three-yearly reports for the Convention on Nuclear Safety (in 2024 and 2027). This approach is the same as adopted for the reporting on the finalisation of actions of the NAcP related to the stress test.

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Introduction

According to the Euratom directive on nuclear safety (2014/87/Euratom) every 6 years a Topic shall be chosen for a Topical Peer Review (TPR) by the regulatory authorities of the EU Member States. Ageing Management (AM) was the Topic chosen by the European Nuclear Safety Regulators Group (ENSREG) for the first TPR. Based on a WENRA-specification, the Netherlands produced its National Assessment Report by the end of 2017.

In 2018 a Peer Review process was carried out consisting of a written questioning and answering phase, followed by a peer review meeting in Luxemburg in May 2018. In October 2018 ENSREG adopted the Summary Report and the Country Specific Findings. It was agreed that each participating country should produce an NAcP by the 30th of September 2019, using a predefined format.

In agreement with the expectations, in the fall of 2019 an NAcP was produced and published, describing the findings from the National Assessment Report, from the Summary Report and the Country Specific Findings. The NAcP includes actions related to the nuclear installations that participated in the TPR, i.e. the Borssele NPP, the High Flux Reactor (Petten) and the Higher Education Reactor (TU Delft). In addition some actions were defined for the ANVS.

This 2023-update of the NAcP contains in its chapter 1 the information on the progress on the actions listed in the 2021 edition of the NAcP (tables 1 and 2). In the tables, where applicable, actions are given the status ‘completed’ and where delays are reported, new deadlines are provided with explanations.

1. Progress on the actions listed in the 2021 NAcP edition

1.1 Actions on licence holders

Table 1 contains the planned actions for each reactor and the associated original and updated deadlines. The last column contains explanations for those statuses that have been updated or labelled as 'completed' in this 2023 edition. For the other actions that were completed last time, in the last column N.A. (not applicable) is written and in the second-to-last column ('Deadline/ Status') their year of completion.

Table 1 Status in 2023 of planned actions of licensees, as listed in the original 2019 NAcP edition

Actor	Thematic	Finding	Planned action	Deadline / Status 04/2021	Deadline/ Status 12/2023	Explanation 12/2023
NPP Borssele	OAMP	During long construction periods or extended shutdown of NPPs, relevant ageing mechanisms are identified and appropriate measures are implemented to control any incipient ageing or other effects.	a. The plant is testing improving corrosion prevention in the secondary system. This will be finished and reviewed in the coming years.	1-1-2023	Completed	Final evaluation has taken place. EPZ intends to continue use of Film Forming Amines (FFA) as corrosion preventative in the secondary system during long shutdown periods.
			b. The plant will study an IAEA TecDoc about this issue looking for areas for improvement. The TecDoc is now in development.	1-1-2022	Completed	TecDoc 1957 and IGALL SOP403 have been used to prepare an AMP for extended shutdown of 1 year to protect both systems that stay in operation and those that are shut down. The AMP addresses, among other things: • Coolant levels, • Closing or keeping pressurized systems open, even including the reactor vessel, and • Fit for purpose and requalification.
NPP Borssele	Cables	Potential of water treeing in inaccessible HV ground cables.	Dielectric spectroscopy measurements will be carried out on 3 inaccessible 6000 V ground cables in the outage of 2019 to check for water treeing and results will be provided	2019	Completed by 2019	N.A.

Actor	Thematic	Finding	Planned action	Deadline / Status 04/2021	Deadline/ Status 12/2023	Explanation 12/2023
NPP Borssele	Cables	Stability of environmental conditions in the long term should be checked.	To check the data of the initial monitoring program for environmental conditions, a representative part of the measurements will be repeated around the year 2023.	1-1-2024	Completed	The monitoring program was realized during the 50th cycle of the Borssele NPP, from the 2022 outage to the 2023 outage. The results have been analyzed and reported. Where necessary new environmental temperatures and dose rates were determined. The final ongoing step is to update AUREST to implement new values. This will be finished before the end of 2023.
NPP Borssele	Cables	The current cables of the in-core temperature measurements are qualified in conformity with the KTA-standards of 1988. The cable type does not fulfill the requirements of the latest standards.	As part of the EQ-program 5 cables of the in-core temperature measurements are replaced in the outages of 2019 and 2020 to fulfil the requirements of the latest qualification standards.	1-7-2021	Completed	The remaining cables were replaced during the 2021 outage.
NPP Borssele	Cables	The use of techniques to detect the degradation of inaccessible cables may be improved	NPP Borssele will review the use of additional methods in the next periodical review of the ageing management program of cables in 2019.	1-1-2020	Completed by 2021	N.A.
NPP Borssele	Concealed pipework	Inspection of safety-related pipework penetrations through concrete structures are part of ageing management programmes, unless it can be demonstrated that there is no active degradation mechanism.	The system health reports take the condition of pipework penetrations and pipework at or near penetrations into account as part of the annual system walkdowns	1-9-2019	Completed by 2019	N.A.
			The ISI instructions for visual inspection will describe that the condition of the penetration and pipework at or near penetrations shall be taken into account during the inspection.	1-1-2020	Completed by 2021	N.A.
NPP Borssele	Concealed pipework	Opportunistic inspection of concealed pipework is undertaken whenever the pipework becomes accessible for other purposes.	A representative of the technical department is present in the daily production scheduling meeting, enabling the identification of opportunities for inspection.	N/A	Completed by 2019	N.A.

Actor	Thematic	Finding	Planned action	Deadline / Status 04/2021	Deadline/ Status 12/2023	Explanation 12/2023
			A smart means of using the work order system to ensure that opportunistic inspections will be conducted when the opportunity arises is being investigated in cooperation with the IT department	1-1-2020	Completed by 2021	N.A.
HFR	OAMP	The development and implementation of the OAMP is not yet realized	HFR will complete the OAMP sufficiently timely before the 2020 SCO (Safe Continued Operation) mission.	2020	Completed by 2021	OAMP delivered in 2020, has been assessed by ANVS. It has been implemented before the SCO mission.
			Then it will implement improvements based on that mission.	2023	Completed 2023	SCO mission completed in 2022. Improvements are carried out and followed-up by ANVS (supervision) and IAEA (FU-mission 2024).

1.2 Actions on competent regulatory authority

The actions to be completed by the ANVS and their status can be found in Table 2.

Table 2 Actions on the competent regulatory authority

Actor	Thematic	Finding	Planned action	Deadline / Status 04/2021	Deadline / Status 12/2023	Explanation 12/2023
ANVS	Concrete containment structure	A proactive and comprehensive methodology is implemented to inspect, monitor and assess inaccessible structures or structures with limited access.	The Netherlands will approach regulators that have developed regulatory guidance that specifically address inspections and monitoring of inaccessible structures and structures with limited access and then decide what is applicable	2021	2024	Information has been requested from several countries and based on the information received, a decision will be taken on the proper regulatory action. This is expected before mid-2024.
ANVS	OAMP	Need of improvement of licences of HFR and HOR	Improve and/or include licence conditions for RRs on AM, taking into account IAEA SSG-10	2024	HFR: Completed by 2021	
				HOR: 2024	HOR: 2025/2026	Licence update was foreseen after completion of PSR and INSARR. Change of plan: complete overhaul of the licence including this action.
ANVS	OAMP	No license condition on regular external review of AM (HOR)	Include similar licence condition on HOR as on HFR to require periodic external review	2024	2025/2026	Delay: same reason as for the previous action; plan for complete overhaul of licence.
ANVS	OAMP	Structured OAMP inspection programmes need to be developed for the operating phase.	ANVS will develop and implement structured inspection programmes for operating OAMPs for NPP and RRs, as part of the overall inspection programmes of the installations.	2020 (HOR), 2022 (KCB), 2023 (HFR)	All completed by 2021	N.A.

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