



Office for
Nuclear Regulation

ENSREG Topical Peer Review on Ageing Management

Status of Actions from the UK National Action Plan – July 2021



July 2021

ENSREG Topical Peer Review on Ageing Management

Status of Actions from the UK National Action Plan – July 2021

Eleanor Crossley, Operating Reactors Sub-Division, Office for Nuclear Regulation

© Office for Nuclear Regulation 2021

Table of contents

Table of contents	5
1 INTRODUCTION.....	6
2 TOPICAL PEER REVIEW PROCESS	7
3 UK NATIONAL ACTION PLAN	7
4 TABLE: SUMMARY OF THE PLANNED ACTIONS	9

1 INTRODUCTION

Context

- 1.1 In 2014, the European Union (EU) Council adopted directive 2014/87/EURATOM amending the 2009 Nuclear Safety Directive to incorporate lessons learned following the accident at the Fukushima Daiichi nuclear power plant in 2011. Recognising the importance of peer review in delivering continuous improvement to nuclear safety, the revised Nuclear Safety Directive introduces a European system of topical peer review which commenced in 2017 and will be repeated every six years thereafter. The purpose is to provide a mechanism for EU member states to examine topics of strategic importance to nuclear safety, to exchange experience and to identify opportunities to strengthen nuclear safety. The member states, acting through the European Nuclear Safety Regulators Group (ENSREG), decided that the topic for the first topical peer review was Ageing Management. Although the UK has left the EU, it continues to participate as an observer and maintains an interest in ENSREG activities.

Scope

- 1.2 The topic that was selected for the first review was ageing management of nuclear power plants and research reactors. The scope for research reactors was those with a power of 1MWth or more. The UK does not have any of these. Therefore, the scope for the UK was:
- The Advanced Gas Cooled Reactors (AGR) and the single Pressurised Water Reactor (PWR) operated by EDF Energy Nuclear Generation Limited (EDF-NG)
 - The two European Pressurised Water Reactors (EPR) at Hinkley Point C being constructed by EDF Energy New Nuclear Build Generation Company Limited (NNB)

Ageing Management

- 1.3 Ageing and ageing management are defined as below in the terms of reference of the Topical Peer Review:
- Ageing is considered as a process by which the physical characteristics of a structure, system or component (SSC) change with time (ageing) or use (wear-out).
 - Ageing management is understood as the engineering, operations and maintenance actions undertaken by a licensee to prevent or to control within acceptable limits ageing degradation of structures, systems and components (SSC) of its installation. With regard to safety it ensures the availability of required safety functions throughout the service life of the plant, with account taken of changes that occur with time and use and by considering all service conditions

2 TOPICAL PEER REVIEW PROCESS

National Assessment Report

2.1 The first stage of the peer review process was the production of a national assessment report for each country participating in the topical peer review by December 2017. The objectives of the National Assessment Report (NAR) were to:

- describe the overall ageing management program including:
 - Programmatic aspects;
 - Implementation of overall ageing management program;
 - Experience of the application of ageing management;
- assess the outcomes to identify main strengths and weaknesses;
- identify actions to address any significant areas of improvement;
- produce a report in sufficient detail to allow a meaningful peer review.

Full specifications for achieving the NAR were provided by ENSREG.

Peer Review

2.2 The second stage of the peer review process was the peer review itself during which National Assessment Reports were examined by other countries in order to share operating experience, identify good practices, common issues and follow-up actions to address the challenges posed by ageing management of nuclear facilities.

Action Plan

2.3 The third phase of the peer review process was the definition of a National Action Plan for addressing the challenges and areas of improvement allocated during the peer review and to meet the identified expected level of performances. In accordance with the Council conclusions of March 18 2019 and the ENSREG decision of March 25 2019, countries that participated in the first Topical Peer Review (TPR) process had to deliver their National Action Plan for Nuclear Power Plants and research reactors by the end of September 2019.

2.4 This report provides a status update of the National Action Plan.

2.5 Full details on the complete process for developing the TPR are presented in the terms of reference and technical specifications by ENSREG.

3 UK NATIONAL ACTION PLAN

3.1 This document presents the UK National Action Plan developed to tackle the findings identified concerning the ageing management and ageing management programs for each nuclear installation in each step of the TPR.

3.2 As required by the TPR process, the UK produced a self-assessment of ageing management in its National Assessment Report. This found that both the UK's operating reactors and its reactors under construction had adequate ageing management programmes appropriate to the stages that they were at in their lifecycles. However, a number of secondary but beneficial improvements were identified for both licensees and programmes for improvement were developed and agreed.

ENSREG Topical Peer Review on Ageing Management – Status of Actions from the UK National Action Plan – July 2021

- 3.3 The UK participated in the written peer review of the European countries National Assessment Reports and the subsequent TPR workshop. These identified a number of findings that needed to be addressed by the participants including UK.
- 3.4 Most of the findings were matters that needed to be addressed by the licensees. ONR asked the licensees to provide responses to the findings and assessed them to provide information for the action plan. This report provides an update to these findings in the National Action Plan as of July 2021.

4 TABLE: SUMMARY OF THE PLANNED ACTIONS

4.1 The actions in the report are summarised in the table below. ONR has a system for regulatory issues which licensees need to address. The actions have been incorporated into a series of regulatory issues specific to the TPR. The licensees’ performance will be monitored against these issues as part of the normal regulatory process and they will be closed out in accordance with that process.

No.	Ref.	Installation	Thematic	Finding	Planned Action	Deadline	Status by July 2021	Regulators Approach to Monitoring
1	EDF-NG2	EDF-NG sites	OAMP	Methodology for scoping the SSCs subject to ageing management: The scope of the OAMP for NPPs is reviewed and, if necessary, updated, in line with the new IAEA Safety Standard after its publication.	EDF-NG to complete its first round of review and update of documents by its technical governance process including review against IGALL documents.	31 December 2022	Still on target. Progress continues as part of normal business.	ONR to review if response is acceptable.
2	EDF-NG3	EDF-NG sites	OAMP		EDF-NG to review implementation of reporting ageing management in the Annual Review of Safety at the stations and make any necessary improvements.	30 July 2020	Complete. ARoS meetings continue through 2020, with Ageing Management included within the discussion. A generic report was provided (previously sent to ONR), in addition to station specific issues being picked up in individual ARoS meetings. It is noted that the overall governance and reporting	ONR to review generic report if response is acceptable.

ENSREG Topical Peer Review on Ageing Management – Status of Actions from the UK National Action Plan – July 2021

							arrangements are also under review in response to action 3.	
3	1B.2	EDF-NG sites	OAMP		EDF-NG to review arrangements against IAEA’s Specific Safety Guide SSG-48 and produce recommendations for improvements by September 2019. EDF-NG to incorporate these into its broader review of ageing and obsolescence.	31 December 2021	<p>On target. Review of IAEA standard Ageing management programmatic as described by SSG-048 was evaluated in the preparation of the Engineering Governance Delivery Team paper submitted in Sept 2019 and Licensee board (November 2019).</p> <p>The ageing management strategy continues to be developed and will be subject to routine engagement with ONR.</p>	ONR to review if response is acceptable.
4		Hinkley Point C	OAMP		NNB to produce an ageing management strategy consistent with IAEA guide SSG-48 (Action 2).	31 August 2021	<p>Ongoing noting revised delivery date. The ageing management strategy continues to be developed and is subject to routine engagement with ONR.</p>	ONR to review if response is acceptable.
5	NAP 3.1.2 Action 3	N/A	OAMP		ONR to publish a Technical Assessment Guide (TAG) on ageing management (Action 3).	30 April 2022	<p>Ongoing noting revised delivery date. ONR are in the process of engaging with the stakeholders to discuss the expectations of the TAG. Through these engagements, it has become apparent that it is unlikely the completion date will be met. Completion of this action has also been delayed due to COVID impact and resource issues. The</p>	N/A

ENSREG Topical Peer Review on Ageing Management – Status of Actions from the UK National Action Plan – July 2021

							completion of this action is likely to be achieved April 2022.	
6	NAP 6.3	Sellafield	OAMP	The Board recommends that countries explore the regulation and implementation of Ageing Management Programmes of other risk significant nuclear installations.	ONR to report the findings of the review of SL's ageing management programme.	30 September 2021	Ongoing noting revised delivery date. This action has been merged with CNI ageing management inspection. 4 inspections to be completed by September 21, consequently completion date to be pushed to Autumn.	N/A
7	EDF-NG 6	EDF-NG sites	Electrical Cables	EDF-NG to update the existing Cable Conditioning Monitoring Technical Guidance Note to differentiate between power cables and I&C cables.	EDF-NG to revise its Control & Instrumentation Service Management document to ensure that the advice in the Cable Condition Monitoring Technical Guidance Note is adequately addressed.	31 December 2019	Action complete. CTS 250 C&I Management was updated to include a reference to TGN 99 Cable Condition Monitoring.	ONR to review if response is acceptable once documentation has been made available.
8	EDF-NG 7	EDF-NG sites	Concealed Pipework		EDF-NG to review the existing buried pipework inspection strategy and update governance and technical guidance documentation to align	31 December 2019	Action complete. The revision to BEG/SPEC/ENG/TGN/131 has been completed. This has incorporated the relevant aspects of BEG/SPEC/ENG/TGN/132 (which has now been	ONR to review if response is acceptable. Reference relevant Structural integrity IR/AR.

ENSREG Topical Peer Review on Ageing Management – Status of Actions from the UK National Action Plan – July 2021

					and consolidate it within the existing fleet-wide Corrosion Management Programme.		superseded). TGN/131 now covers the forward strategy for the management of buried pipework, aligning with the overall Corrosion Management programme detailed within BEG/SPEC/ENG/CTS/031.	
9	3A.1	EDF-NG sites	Concealed Pipework	Good practice: use of results from regular monitoring of the condition of civil structures - In addition to providing information on soil and building settlement, the results from regular monitoring of the condition of civil structures are used as input to the ageing management programme for concealed pipework.	EDF-NG to ensure that cognisance is taken of any adverse settlement findings when assessing the condition of concealed pipework during its next routine update of the relevant documentation.	30 April 2020	Action complete. BEG/SPEC/ENG/TGN/131 – ‘Risk Management of Buried Pipework With Respect to Corrosion’ was updated to refer to awareness of adverse results arising from building settlement inspections undertaken as per BEG/SPEC/ENG/TGN/136, which may have an impact on adjacent buried pipework.	ONR to review if response is acceptable.
10	5A.1	EDF-NG sites	Concrete containment structures and pre-stressed concrete	Good practice: monitoring of concrete structures - Complementary instrumentation is used to better predict the	EDF-NG to complete its study for the Sizewell B pre-stressed concrete containment vessel (PCCV) to investigate whether data logger improvements can be used to enhance PCCV	31 December 2020 (deadline due to be revised)	Ongoing noting revised delivery date. The data logger improvements do not impact short or medium term operation, and the VWSG output does not contribute a mandatory part of the ASME compliance or APEX sanction	ONR to assess current findings and resolution to close action.

ENSREG Topical Peer Review on Ageing Management – Status of Actions from the UK National Action Plan – July 2021

			pressure vessel	mechanical behaviour of the containment and to compensate for loss of sensors throughout the life of the plant.	strain gauge reading availability and then reconsider whether it is ALARP to install complementary instrumentation.		of the containment structure operability. The benefits of improving the current extent of serviceable VWSGs has been recognised as potential enhancement that could benefit Long Term Operation business case, and accordingly has been added to the scope of this wider review which may facilitate a more suitable route for investment e.g. to support an optioneering exercise for a longer term replacement / overhaul of the complete VWSG logger system (noting its current age) and align with LTO expectations.	
11	5A.2	EDF-NG sites	Concrete containment structures and pre-stressed concrete pressure vessel	Good practice: assessment of inaccessible and/or limited access structures - A proactive and comprehensive methodology is implemented to inspect, monitor and assess inaccessible structures or structures with limited access.	EDF-NG to include the following improvements in its guidance for the inspection of inaccessible areas for the Sizewell B pre-stressed concrete containment vessel (PCCV) and AGR pre-stressed concrete pressure vessels (PCPV), during its next routine update: <ul style="list-style-type: none"> The use of opportunistic inspections where 	30 July 2021	Action complete. BEG/SPEC/ENG/CTS/200 'Management of Concrete Pressure Vessels' has been updated and issued.	ONR to assess current findings and resolution to close action.

ENSREG Topical Peer Review on Ageing Management – Status of Actions from the UK National Action Plan – July 2021

					<p>concealed or buried areas are being exposed for other purposes</p> <ul style="list-style-type: none"> • Guidance based on examples to illustrate how condition information can be collected using indirect investigation methods. 			
--	--	--	--	--	---	--	--	--