

2nd Topical Peer Review

Choice of topic of fire protection at nuclear installations, WENRA SRL

ENSREG
1st Stakeholder Engagement event
22 June 2021

Gila Stoppa

Chair of WENRA Reactor Harmonization Working Group (RHWG)

Topical Peer Review 2023

WENRA

Reactor Harmonisation Working Group
(RHWG)

Task

Identify 3 Potential Topics for TPR II

Topical Peer Review 2023

WENRA RHWG Proposal on Potential Topics

First preference:

- Fire protection
- Qualification of selected Structures, Systems and Components (SSCs) important to safety

Second preference:

- Natural Hazards
- Emergency power in Design Basis and in Design Extension Conditions (DECs)

Approved by
WENRA



Submitted
to ENSREG

Topical Peer Review 2023

WENRA RHWG Proposal on Potential Topics

How did we get there?

Topical Peer Review 2023 - ENSREG Criteria

The topic...

CR1. is clearly related to nuclear safety, and within the scope of the Nuclear Safety Directive;

CR2. is an area where further safety improvement might still be possible or where further harmonization of regulation may be achieved;

CR3. is an area that gives priority to installation types based on risk, but is also relevant to other installation types to the extent possible;

CR4. is relevant to as many participating countries as possible to promote sharing of experience;

CR5. Is neither too broad/general, nor too narrow in scope; and is an area where the practical implementation in the field can be adequately reviewed by a desktop peer review process;

CR6. is ideally supported by an established set of standards or guidance

CR7. is an area that has not previously been the subject of an EU-wide review.

Topical Peer Review 2023 - Selection Process

Topic
Fire protection
External or Natural Hazard
Emergency power in Design basis and in DECs
PSA applications
Control room
Defence in Depth for electrical systems / digital I&C
I&C topics
Periodic Safety Review
Lifetime extension (LTO) process
Competence, maintaining expertise and skills in nuclear safety
Authority and resources of the regulatory bodies
Use of operational experience feedback by regulators and licensees
Implementation of Severe Accident Management Program
Emergency operating procedures and SAMGs
Safety culture
Carbon Segregation
Qualification of SSCs important to safety
Qualification of commercial grade components
Obsolescence and spare parts
Multi-unit PSA/DSA
Interface safety/security
Independent oversight processes

**RHWG
topics**

Target: 3

Topical Peer Review 2023 - Selection Process

Topic	Country Rating						Average Score
	A	B	C	D	E	...	
Fire protection	13	11	14	14	14	...	13,1
External or Natural Hazard	7	9	13	13	7	...	10,9
Emergency power in Design basis and in DECs	10	10	14	13	6	...	11,6
PSA applications	11	11	9	10	9	...	9,4
Control room	8	7	12	14	9	...	10,6
Defence in Depth for electrical systems / digital I&C	9	7	10	11	7	...	9,4
I&C topics	9	7	10	11	7	...	9,3
Periodic Safety Review	12	12	11	9	7	...	9,8
Lifetime extension (LTO) process	8	7	8	7	6	...	7,4
Competence, maintaining expertise and skills in nuclear safety	5	6	11	11	11	...	9,8
Authority and resources of the regulatory bodies	5	8	10	10	4	...	8,2
Use of operational experience feedback by regulators and licensees	7	8	12	12	13	...	10,8
Implementation of Severe Accident Management Program	4	8	13	13	11	...	10,8
Emergency operating procedures and SAMGs	4	8	11	11	11	...	9,9
Safety culture	8	8	10	8	6	...	8,8
Carbon Segregation	3	3	5	4	5	...	3,9
Qualification of SSCs important to safety	11	9	12	13	12	...	10,8
Qualification of commercial grade components	11	6	8	9	8	...	8,3
Obsolescence and spare parts	6	8	13	13	10	...	10,8
Multi-unit PSA/DSA	4	6	12	12	10	...	9,6
Interface safety/security	6	7	12	11	5	...	10,0
Independent oversight processes	6	8	9	8	6	...	7,9

Topical Peer Review 2023 - Selection Process

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PSA applications	11	11	9	10	9	...	9,4	X		X			...
Control room	8	7	12	14	9	...	10,6	X				X	...
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Implementation of Severe Accident Management Program	4	8	13	13	11	...	10,8		X				...
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Control room	8	7	12	14	9	...	10,6	X				X	...
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Emergency power in Design basis and in DEC's	10	10	14	13	6	...	11,6		X		X		...
PSA applications	11	11	9	10	9	...	9,4	X		X			...
Control room	8	7	12	14	9	...	10,6	X				X	...
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Qualification of SSCs important to safety	11	9	12	13	12	...	10,8		X			X	...

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- Fire protection

Topical Peer Review 2023

Why Fire protection?

- Fire is among the **significant risks** for nuclear installations
- **Applicable to all nuclear installations**
- An area where **reasonably practicable improvements** or **room for harmonization** may be identified
- May provide **useful operating experience** regarding the fire compartment versus fire cell approaches
- **Large experience feedback** on fire related events
- **Technologically neutral**
- Not very often topic for benchmarking

Topical Peer Review 2023

Why Fire protection?

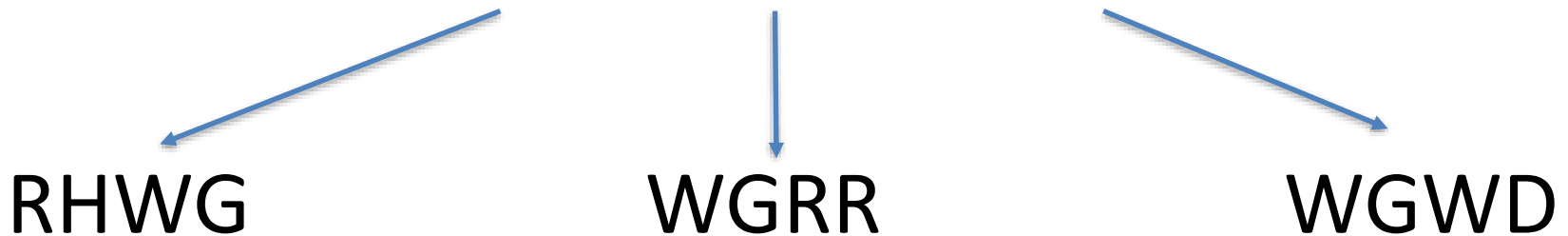
Some examples of specific outcomes could be:

- Fire protection systems can cause internal hazard themselves after actuation, e.g. flooding. How are these possible negative effects taken into account?
- As many events and hazards could cause fires. How is this taken into account in the fire hazard analysis?
- How are compartmentalisation and segregation implemented in practice? And specifically, how is ensured that during operation this compartmentalisation and segregation is preserved.

Topical Peer Review 2023

WENRA ad-hoc working group to develop the Technical Specifications

Based on WENRA Safety Reference level



Thank you.

Gila Stoppa
Chair RHWG
gisela.stoppa@bmu.bund.de

Federal Ministry for the Environment
Germany