Autoriteit Nucleaire Veiligheid en
Stralingsbescherming

# Topical Peer Review II: Fire Safety National Action Plan

The Netherlands

## Colofon

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|---|---|
| Projectnaam | Topical Peer Review II: Fire Safety and Fire Protection Concept and implementation - National Action Plan. |
| Projectnummer | |
| Versienummer | |
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# Glossary

**10EVA:** 10- yearly Periodic Safety Review

**AFI**: Areas for Further Improvement

**ANVS:** Autoriteit Nucleaire Veiligheid en Stralingsbescherming

**CCV:** Centrum voor Criminaliteitspreventie en Veiligheid (The CCV inspection schemes for Basic Fire Protection Design, Detailed Fire Protection Design, and Fire Protection System allow inspection bodies accredited as Type A bodies under NEN-EN-ISO/IEC 17020 to harmonize their assessment of whether a fire protection system in a building complies with general requirements.)

**CRR:** Country Review Reports (prepared by ENSREG)

**DID**: Defence In Depth

**EPZ:** Elektriciteits- Productiemaatschappij Zuid-Nederland

**HFR:** Hoge Flux Reactor

**HOR:** Hoger Onderwijs Reactor

**KCB:** Kernenergie Centrale Borssele

**NAcP:** National Action Plan

**NAR:** National Assessment Report

**NPP:** Nuclear Power Plant

**RR:** Research Reactor

**SR:** Summary Report (prepared by ENSREG)

**TS:** Technical Specification (report prepared by ENSREG)

**UNL:** URENCO Netherlands

**TPR II:** Topical Peer Review II

# 1 Introduction

## 1.1. The National Action Plan

This document, the National Action Plan from The Netherlands, aims to address the relevant findings resulting from the Topical Peer Review II: Fire Protection (TPR II) process. It has been developed by the Regulatory Authority (ANVS) together with the licensees, in response to the findings presented by ENSREG in the Country Review Report.
It marks the beginning of the third Phase of the process, as follows from the planning presented in the TPR II Terms of reference (2022; https://www.ensreg.eu/sites/default/files/attachments/ensreg_terms_of_reference.pdf ).
The TPR II has been executed in three phases:

- National Assessment Report (July 2022 – 31st October 2023) – it presents the results of the assessment conducted in the Netherlands.
    - licensees' self-assessment in line with the WENRA technical specification;
    - the assessments were independently reviewed by the national regulator, during preparation of the national assessment report;
    - the national assessment report was edited and finalized by the ANVS.
- Peer Review (1st of November 2023 – end of 2024) - including publication of a summary report and country specific reports.
    - Pre-workshop review of national reports (November 2023 – April 2024);
    - Site visits (May-June 2024) and Peer review workshops (second half 2024).
    - Thematic workshop and Country workshop, to discuss topics and results
- Follow-Up (after 2024) - definition and implementation of measures to address relevant findings from national assessments and peer review process.
    - Publication of National Action Plans;
    - Publication of ENSREG Action Plan;
    - Status of action plans (periodically > 2025).

It must be mentioned that, in 2025, the target date for presenting the National Action Plans has been rescheduled by ENSREG to 31 Augustus 2026.
The Netherlands' National Assessment Report, the peers review Q&A and the ENSREG Country Review Report of the public domain and are published and on the ENSREG website and on the ANVS website respectively.

**ENSREG:** https://www.ensreg.eu/country-specific-reports/EU-Member-States-tpr2/Netherlands
**ANVS:** https://www.autoriteitnvs.nl/documenten/2023/11/06/national-assessment-report-of-the-netherlands-for-the-topical-peer-review-2023-on-fire-safety

A brief description of these reports is given in the following sections.

## 1.2. Country Review Reports and Summary Report

### 1.2.1. Background

The final reports of second Topical Peer Review -Phase 2 under the Nuclear Safety Directive were issued by ENSREG in the spring of 2025 (Summary Report and Country Review Reports). National areas of good performance and national areas for improvement are described in the 22 individual Country Review Reports (CRR). The review also identified both good practices and challenges at the EU-level, which are detailed in the Summary Report (SR).
The findings of the peer review are categorized according to the following definitions (Annex II of the Summary Report):

- **Good Practice** which should be understood as an aspect of fire protection, which is considered by the TPR review Team to go beyond what is required in meeting the appropriate national or international standards. It is identified in recognition of an arrangement, practice, policy or programme significantly superior to those generally observed in participating countries and having a clear safety benefit. It is likely to be applicable to other participating countries with similar programmes and it is for each country to review and decide on its implementation in relevant nuclear installations to improve safety.
- **National area of good performance** which should be understood as an arrangement, practice, policy or programme related to fire protection that is recognized by the TPR review Team as a significant accomplishment for the country and has been undertaken and implemented effectively in the country and is worthwhile to commend.
- **National area for improvement** which should be understood as an aspect of fire protection identified by the TPR Peer Review Team where improvement is expected, considering the arrangement, practice, policy or programme generally observed in other participating countries. It may also be self-identified by the country itself (i.e. self-assessment) where improvement is appropriate.
- **Challenge (EU wide)** EU wide Challenges which should be understood as aspects in the implementation of fire protection that are considered by the TPR Peer Review Team to be common to many or all countries and are areas where action at a European level, in addition to action at national level, would help to increase available knowledge, drive consistency or produce beneficial new techniques or technology to assist in enhancing fire protection at nuclear installations or the fire safety case.

According to the Nuclear Safety Directive (recital 23, 3rd paragraph) *"…Member States should establish national action plans for addressing any relevant findings and their own national assessment, taking into account the results of those peer review reports.".* The TPR II technical specification (TS) also acknowledges the opportunity to reflect on peer review outcomes stating, "*There are different practices in implementation of fire protection among installations, which gives the opportunity to learn from each other and share experiences*" and that "*...the results of TPR II can lead to new insights"*.
According to the TPR II terms of reference, *"On the basis of the relevant CRR, each country will prepare a specific National Action Plan that will be published … on the ENSREG website. The actions shall be as specific as possible to each installation. A template for the National Action Plan will be provided after the peer review phase".*
Furthermore, "*Each country will also inform on the progress of the implementation of the actions included in the action plan based on a follow-up schedule of at least 3 years, as defined in the ENSREG Action Plan."*

It should be recalled that national assessments identified both candidate installations and represented ones. The TS mentions that "…Insights from the TPR should be transferrable to these represented installations." According to the technical specification, the "term 'represented installations' refers to installations that will not be reported on in the NAR but which are similar to candidate facilities. Insights from the TPR should be transferrable to these represented installations".
Consequently, the TPR II Summary Report of the TPR Board, endorsed by ENSREG, reiterates these elements from the Directive and the TS: "*The National Action Plan should address the results of the self-assessment and respond to the country specific findings (CSFs) outlined in the country review report."* Furthermore, the Board recommends that *"…participating countries consider how the insights from the TPR, in particular their CSFs, are transferable to their "represented installations" when developing their NAcP. Additionally, the Board encourages participating countries to examine all findings from this peer review - regardless of their categorisation (good practice, area of good performance, area for improvement) - and assess their applicability to enhance fire protection*."

### 1.2.2. Site Visits

A Site Visits by a delegation from ENREG to the HOR reactor was organized in May 2024. The objectives of the Site Visits were to:

- draw lessons, highlight experience on practices and approaches relevant to similar installation types, or in similar phase of its lifecycle;
- provide additional opportunities for peer reviewers to view how practical and operational aspects of fire-protection are implemented in the field, to complement design and programmatic aspects covered by the NAR;
- offer operators the opportunity to benefit from interactions and exchange of views with international experts on issues related to fire protection systems;
- contribute to the information exchange and sharing of experience in the workshop sessions.

After the Site Visits, a Site Visit Team report with findings was produced by the ENSREG delegates. These reports were shared with each country but were not made public by ENSREG. Nevertheless, the findings were included in the published Country Review Reports.

### 1.2.3. Findings from the Peer Review – Areas of Good Performance

The TPR II review team has identified the following Areas of Good Performance for The Netherlands, as a significant accomplishment for the country, which have been undertaken and implemented effectively, and are therefore worthwhile to commend:

**AGP (1):** Full-scope fire PSA in all operational states for Level 1 to 3 of PSA. The PSA enables the quantification of the impact of radiological releases due to fire events on the environment and the public.

**AGP (2):** A systematic approach for combination of hazards is applied. A systematic approach for combination of hazards is applied, based on guidance developed for NPPs and adapted for HFR.

These AGPs are shared with the rest of the participants and are promoted for their implementation.

## 1.3. The National Assessment Report & Included and represented installations

In the period 2022 to 2024, each participating country having nuclear facilities within the scope of TPR II produced a National (Self) Assessment Report (NAR) according to the structure defined in the TS, describing the overall fire safety for the relevant installations.
The self-assessment included the identification of main strengths and weaknesses. The NAR was produced and coordinated by the national regulatory authority, according to the format and content described in the TS, with significant input from the licensees.

All the 5 existing nuclear installations have been directly included in the assessment:

- The Borssele NPP, located in the south-west of the country, in Borssele (province of Zeeland), also known as the 'Kerncentrale Borssele', the KCB.
- Two research reactors, one is located on the premises of the Delft University of Technology in Delft (province of Zuid-Holland), this is the so-called 'Hoger Onderwijsreactor', the HOR. The other one is located on the Energy and Health Campus (EHC) in Petten (province of Noord-Holland), this is the High Flux Reactor (HFR). Additional nuclear research facilities and laboratories can be found at both the Delft University of Technology and in Petten (Nuclear Research & consultancy Group, NRG and the EU Joint Research Centre, the JRC).
- The uranium enrichment facility of Urenco Netherlands, located in the eastern part of the country, in Almelo (province of Overijssel).
- The COVRA interim radioactive waste storage facility located in the south-west of the country close to the Borssele NPP, in the municipality of Nieuwdorp (province of Zeeland). COVRA has facilities for the storage of conditioned low, intermediate and high-level waste, including spent fuel from research reactors, NPPs and waste from reprocessing of spent fuel.

There are no represented installations in The Netherlands' reports as per the guidelines in the TPR II Technical Specification, Annex 4 (ENSREG).

**Participating facilities in the Netherlands**

| Nuclear facility | Characteristics | Licensee |
|---|---|---|
| Borssele NPP | PWR/2-loop | EPZ NV |
| HFR RR | Tank in pool, 45 MWth | NRG |
| HOR RR | Open pool, 2 MWth | TU Delft |
| Enrichment facility | Centrifuge enrichment | Urenco |
| HABOG, spent fuel and HLW storage | Aboveground storage buildings | COVRA |

# 2 Follow-up of findings from the Peer Review – National Areas For Improvement (AFI)

This section of the NAcP is dedicated to the country-specific findings resulting from the peer review as reported in Section 4 of The Netherlands' CRR.
For simplicity, the AFIs will be grouped per installation, maintaining the AFI number as reported in the Country Review Report.
No AFIs for the HFR research reactor or for the COVRA repository were identified by ENSREG.

## 2.1. AFI (1) - Borssele NPP: Several automatic extinguishing systems do not fully comply with the current design requirements and regulations.

### 2.1.1. AFI (1) Context

This AFI (1) is based on the text from the National Assessment Report, Section 3.1.4.1 (page 102). There, the following is written:

"In *relation to the Kew-license conditions, EPZ is obliged to have the fire detection installation and the permanently installed automatic fire extinguishing installations certified. When the fire detection system was replaced in the period 2014 – 2016, the new installation was certified by the independent KIWA / R2B inspection organization in accordance with the KIWA CCV regulations.*
*EPZ is still in the process of getting its permanently installed automatic fire extinguishing installations certified. These systems employ water, inert gas and water fog. Because of the earlier design from the 1970s and 1980s, for several automatic extinguishing systems it is difficult to demonstrate that these earlier designs comply with the current design requirements and regulations. Nevertheless, EPZ expects that before 2026, the permanent automatic fire extinguishing installations will have been certified. If certification turns out not to be possible (for practical reasons) this shall be described in a report.*".

### 2.1.2. AFI (1) identified action(s) and implementation progress

At the time of publication of this report, AFI (1) has been partially solved.
Several planned activities were implemented in the period 2024-2025 to update the status of the automatic extinguishing systems and certification. The new installation is compliant with the 2025 version of the Technical Bulletin 80 (TB80).
The updates in the extinguishing systems have been reported to, and accepted by, the regulator. The work follows a Change Request Procedure, in compliance with the license conditions. The regulator organizes progress inspections to follow the activity.

**Action:** Some other improvements are ongoing, for instance: Transformer extinguishing and water mist systems for the emergency diesel generators.
EPZ will continue and finalize the updates.

## 2.2. AFI (2) - Borssele NPP: The fire detection alarms are not simulated in the control room simulator

### 2.2.1. AFI (2) Context

This AFI (2) is based on the text from the National Self- Assessment report, Section 3.1.4.1 (page 105). There, the following is written:

"*An IAEA OSART mission was organized in January – February 2023, thus at the time of writing of this report. Some findings are:*
*[…]*
- *Qualification and training of personnel: the plant self-identified that currently the fire detection alarms were not simulated in the control room simulator.*

*[…]* "

### 2.2.2. AFI (2) Identified action(s) and implementation progress

This AFI (2) is deemed to be completed.
Some time after the NAR was written and published, the Control Room Simulator that used to be placed in Germany has been relocated to The Netherlands, in the year 2025. Through this change, EPZ has a more direct oversight on its capacities.
A mistake in the text of the NAR was noted, since it was observed that the simulator actually has capabilities to simulate fire alarms. Both IAEA (during the OSART mission) and ENSREG were, in fact, not correctly informed by EPZ due to a misunderstanding. The correct situation is that fire alarms are simulated on the plant simulator, and that this capacity can be programmed.

**Action:** No action required, as the AFI is already completed.

## 2.3. AFI (4) - Borssele NPP: Automatic fire suppression is not guaranteed in case of SSE (Safe Shutdown Earthquake)

### 2.3.1. AFI (4) Context

This AFI is based on the text from the National Assessment Report, Section 3.1.2.2.2: NPP KCB Fire suppression provisions; NPP KCB Types, main characteristics and performance expectations (page 91).
There, the following is written:
"*The high-pressure extinguishing system consists of a water tank, two pumps, both electric and powered by emergency power busses plus a jockey pump. The part of the high-pressure system in the nuclear area is seismically qualified. The pumps, however (built in in the electric building) are not seismically qualified. Therefore, in case of a seismic incident, a fire truck or a mobile pump can supply water into the high-pressure system of the reactor building.*"

Additionally, this topic was further discussed during the Country workshops. In the CRR, the following is written:
"**Finding**: Automatic fire suppression is not guaranteed in case of SSE.
**Justification:** The high-pressure pump system for water supply to the fire protection system is not seismically qualified. It does not allow to cope with seismically induced fires. "

### 2.3.2. AFI (4) Identified action(s) and implementation progress

This action was thoroughly addressed in the NAR and during the Country Workshop. As explained in the NAR, the seismic risk in the Southwestern area of the Netherlands, where the NPP is located, is very low.
EPZ carried out a Seismic Margin Assessment (SMA), where consideration was given to fires resulting from a potential seismic event. As a result of the Seismic Margin Assessment, the plant was retrofitted to enable the connection of a fire truck to seismic resistant fire lines, in order to extinguish a fire in relevant areas. Additionally, in case of a seismic incident, a fire truck or a mobile pump can supply water into the high-pressure system of the reactor building.

The regulator has analyzed and licensed the safety level of the installation as a whole, considering the risks of seismic events, DiD levels and alternative available systems.

**Action:** AFI (4) is deemed to be solved, and no further actions are identified.

Consideration: The finding will be taken into consideration for new nuclear initiatives in The Netherlands.

## 2.4. AFI (3) – Urenco NL enrichment facility: No obvious connection between the diverse fire analyses performed with different requirements, guidelines and scenarios depending on the fire analyses.

### 2.4.1. AFI (3) Context

This AFI is based on the text from the National Assessment Report, Section 2.4.6.1 (page 72). There, the following is written:

"Fires *have been accounted for in different reports, mainly those about the Safety Analyses and Fire Hazard Analysis. These are elaborated following different requirements and guidelines. Analyses of different fire scenarios are described in several reports. These reports have been developed by different experts, and show no obvious connection, since scenarios differ. Moreover, not all scenarios mentioned in UNL's Safety Report are considered in the Fire Hazards Analysis report, for instance ignition of accumulated hydrogen*. ".

### 2.4.2. AFI (3) Identified action(s) and implementation progress

The action has been considered as an input in the development of the 10- yearly- Periodic Safety Review of the installation (namely 10EVA27), as part of the Safety Factor 5: Safety Analyses.
A specific research question has been added: "Do the international experiences and suggested improvements from the ENSREG Peer Review regarding fire safety by Urenco warrant improvement measures? If so, what are these? " .

**Action:** This question will be investigated in the period 2026-2027, in the framework of the 10 -yearly -Periodic Safety Review.

## 2.5. AFI (5) – HOR RR: Inadequate management and qualification of isolation valves in the reactor building.

### 2.5.1. AFI (5) Context

This AFI is based on the findings from the Sites Visits conducted by an ENSREG delegation to the HOR reactor in May 2024. There, the following is written:

"The *reactor building forms one fire compartment. Two sets of containment isolation valves (inlet and outlet ventilation dampers) provide the isolation of the reactor building in case of fire. The fire-resistance of the isolation valves is not known; therefore, the fire compartmentation is not guaranteed during 60 minutes as for the rest of the reactor building fire compartment*. "

### 2.5.2. AFI (5) Identified action(s) and implementation progress

**Action HOR**: An analysis has been commissioned to consultancy company Haskoning to investigate if possible fires represent a risk for the confinement function of the valves. The report analyses the potential fire loads and the resulting temperatures, together with the concludes that the valves are sufficiently resistant to the fire events.
The AFI is completed.

## 2.6. AFI (6) – HOR RR: In the reactor building, fire detectors are located only in the ventilation ducts

### 2.6.1. AFI (6) Context

This AFI is based on the findings from the Sites Visits conducted by an ENSREG delegation to the HOR reactor in May 2024. There, the following is written:

"*The current automatic detection of fires inside the reactor building relies exclusively on smoke detectors located inside the ventilation pipes. The team noted that, while this should allow a timely detection in most scenarios, the fire detection would be disabled/ineffective when the reactor building ventilation is stopped or isolated. The current fire detection inside the reactor building does moreover neither allow identifying more precisely the origin nor the spread of fires inside the reactor building. The HOR could benefit from installing additional local fire detectors (based on existing modern technologies), at several places outside the ventilation, at the key relevant locations inside the reactor building.* ".

### 2.6.2. AFI (6) Identified action(s) and implementation progress

**Action HOR:** Additional detectors will be placed in the reactor building.

# 3 Follow-up of other findings resulting from the self-assessment (NAR)

This section is dedicated to the findings from the self-assessment, as reported in § 3 of the CRR, which refers to additional improvements identified in the self-assessment report (NAR). It is based on fire-protection thematics as per the Technical Specification.
In many cases, the self-assessment findings are already captured by section 2 above as areas of improvement, so for these there is no need to repeat information already presented. This section will focus on additional improvements which are not already covered in Section 2.

## 3.1. Additional AFIs identified for Borssele NPP

The following weaknesses related to fire protection were reported in the NAR Section 3.1.4 for Borssele NPP (KCB):

- A potential weakness can be a lack of discipline to carry out the control rounds by the operating personnel.

The intention of this point was to promote awareness among the TPR II members that repetitive control rounds could lead to a reduction of attention in the controls, and that it need continuous promotion. A high level of awareness is generally of great importance for safe operation of nuclear power plants. This also applies for fire safety, particularly because of the many aspects involved (fire load, ignition sources, accessibility, detectors, fire doors, etc.).
This has been tackled in different ways at Borssele, for example:

- Control rounds done by the insurance company
- Control rounds done by the Safety Region Fire Brigade
- Weekly control rounds by the plant fire brigade
- Continuous awareness program of employees

**Action:** No further actions is expected. The subject is deemed sufficiently covered.

## 3.2. Additional AFIs identified for the HFR research reactor

The following weaknesses related to fire protection were reported in the NAR for HFR:

- the location of the available fire-fighting equipment is currently not described in the LNP (Site Emergency Plan). This is included in other, unreferenced documents

**Action:** It is foreseen to update the LNP to include a reference to these documents, so that it is clear where the fire-fighting equipment is located.

## 3.3. Additional AFIs identified for the HOR research reactor

The following weaknesses related to fire protection were reported in the NAR for HFR:

- Last complete revision of the license was done in the year 1996, and the explicit requirements for fire safety were not developed in much detail.

**Action:** A complete license renewal process is started in 2026, covering all relevant aspects. Fire safety requirements will be explicit in the new license.

Additionally, in June 2024, a Site visit to the HOR was conducted by ENSREG. The following improvements were identified:

- Fire resistance compartmentation of the control room and Management of fire loads in the reactor building and in rooms adjacent to control room;
- Management of fire-fighting organization in place during weekends and holidays: external firefighters are called by security guards of the site but have to wait for the licensee to enter in certain parts of the building: it results in longer response time for firefighting.

Both AFIs were further discussed. Regarding the first bullet, at the moment the Site Visits were carried out, a fire compartmentalization of the room next to the control room was being implemented. It was finalized in 2024-2025. This improvement is deemed completed, and no further actions are expected.
With respect to the second bullet, the fire load in the reactor hall is very low; and the PSA indicates that the risk of CDF due to these is sufficiently low. The reactor is shut down during the weekends. The risk is therefore low and is considered a negligible risk.

**Actions:** No further actions. The AFI is completed.

### 3.4. Additional AFIs identified for the Urenco enrichment facility

The following weaknesses related to fire protection were reported in the NAR for Uranium Enrichment Company:

- Due to the fact that UNL has several fire stations on site with personal equipment, team members are not provided with their own equipment. Equipment is available in different sizes. Occasionally, team members are not provided with their own size.
- Due to the large buildings, most built up in concrete, walky-talky contact can be difficult.

Both AFIs were further analyzed. With regards to turnout/bunker equipment, most flexibility in emergency response is provided with operators (first responders) at the fire stations (current set-up) over the site, as opposed to a centralized fire station with personal gear.
With regards to portable radios, reinforcement of the network within buildings has been realized by installing additional transmitters and repeaters.

**Actions**: No further actions remain currently open.

# 4 Overall conclusions

The Topical Peer Review II took place across many years, and included the contribution of about 20 people from the regulator and all the nuclear installations in The Netherlands.

Several members of the regulator and the installations were present in both of the Thematic and the Country workshops as well.

The TPR II process has provided a space for reflection and sharing of experience within and across the member countries. As a general remark, the scope of the TPR-II has been deemed (too) broad, introducing challenges in the coordination of all the activities and deliverables, especially when looking at all the variety of installations and approaches in the different countries.

This National Action Plan was elaborated following the guidelines given by ENSREG, and all the identified Areas of Further Improvement and Good Practices presented in the CRR have been attended to. Additionally, other improvements presented in the NAR and not considered in the CRR are included in this NAcP. Consequently, a list of actions to be carried out in the coming years has been elaborated.

## Annex A Summary table of the actions planned/implemented

| Section of the NAcP | Reference no of the finding | Installation type/name (as relevant) | Thematic | Finding | Actions (planned/underway/completed) | Deadline | Regulatory authority's comment on progress |
|---|---|---|---|---|---|---|---|
| 2 | AFI 1 | NPP – Borssele | | Several automatic extinguishing systems do not fully comply with the current design requirements and regulations | **Underway**<br>Since the moment the NAR was written, several activities were implemented in the period 2019-2025 to update the status of the automatic extinguishing systems. The new installation is compliant with the 2025 version of the Technical Bulletin (TB80).<br>Some other improvements are ongoing, for instance: Transformer extinguishing and water mist systems for the emergency diesel generators | 2027 | **Jan. 2026**<br>The updates in the extinguishing systems have been reported to, and accepted by, the regulator. The work follows a Change Request Procedure, in compliance with the license conditions. |
| 2 | AFI 2 | NPP – Borssele | | The fire detection alarms are not simulated in the control room simulator | **Completed**<br>A mistake in the text of the NAR was noted, since the simulator does have capabilities to simulate fire alarms | - | I) Since the NAR was written, the Control Room simulator has been relocated from Germany to The Netherlands.<br>II) A mistake in the text of the NAR was noted, since the simulator actually has capabilities to simulate fire alarms |
| 2 | AFI 3 | Urenco - FCF | | No obvious connection between the diverse fire analyses performed with different requirements, guidelines and scenarios depending on the fire analyses reports | **Underway**<br>This question will be investigated in the period 2026-2027, in the framework of the Periodic Safety Review | 2027 | In the moment that the 10EVA is approved by the regulator, the AFI will be deemed completed |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 2 | AFI 4 | NPP – Borssele | | Automatic fire suppression is not guaranteed in case of SSE | **Completed**<br>For a complete substantiation of this topic, see the corresponding Section 2.3 of this NAcP | - | The regulator has analyzed and licensed the safety level of the installation as a whole, considering DiD levels and alternative available systems and procedures |
| 2 | AFI 5 | RR - HOR | | Inadequate management and qualification of isolation valves in the reactor building | **Completed**<br>An investigation and analysis has been commissioned to Haskoning in 2026, concluding that fires do not represent a risk for the confinement function of the valves | - | The report analyses the potential fire loads and the resulting temperatures in the reactor hall, together with the qualification basis of the valves. It concludes that the valves are sufficiently resistant to the fire events, by a large margin. |
| 2 | AFI 6 | RR - HOR | | In the reactor building fire detectors are located only in the ventilation ducts | **Underway**<br>Additional detectors will be placed in the reactor building | Q3 2026 | |
| **Section of the NAcP** | **Reference no of the finding** | **Installation type/name** (as relevant) | **Thematic** | **Finding** | **Actions (planned/underway/completed)** | **Deadline** | **Regulatory authority's comment on progress** |
| 3 | NAR Section 3.2.4.1 (p.117) | RR- HFR | | The location of the available fire-fighting equipment is currently not described in the LNP (Site Emergency Plan) | **Planned**<br>It is foreseen to include a reference to these documents in the LNP, so that it is clear where the fire-fighting equipment is located | 2027 | |
| 3 | NAR Section 3.3.5.1 (p.132) | RR - HOR | | Last complete revision of the license was done in the year 1996, and the explicit requirements for fire safety were not developed in much detail | **Underway**<br>A complete license renewal process is started in 2026, covering all relevant aspects. Fire safety requirements will be explicit in the new license | Q2 2027 | The regulator is actively participating in the license renewal process.<br>At the moment the updated license is granted, this AFI will be deemed completed. |
| 3 | CRR Section 4.2 (p.11) | RR - HOR | | Fire resistance compartmentation of the control room and management of fire loads in the reactor | **Completed** | - | At the moment the Site Visits were carried out, a fire compartmentalization of the room next to the control room was being |

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|---|---|---|---|---|---|---|---|
| | | | | building and in rooms adjacent to control room | | | implemented. It was finalized in 2024-2025 |
| 3 | CRR Section 4.2 (p.11) | RR - HOR | | Management of fire-fighting organization in place during weekends and holidays: external firefighters are called by security guards of the site but have to wait for the licensee to enter certain parts of the building: it results in longer response time for firefighting | **Completed**<br>The fire load in the reactor hall is very low; and the PSA indicates that the risk of CDF due to these is sufficiently low. The reactor is shut down during the weekends. The risk is therefore low and is considered a negligible to demand further actions. | - | |

Dit rapport is een uitgave van de

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Januari 2026