ENSREG
European Nuclear Safety Regulators Group

Topical Peer Review II
Fire protection
at nuclear installations

Fire prevention and passive fire protection

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TPR II - Second Stakeholder Meeting

1. Fire prevention and passive fire protection
2. Topics of interest
3. Generic review findings
4. Conclusions for this thematic

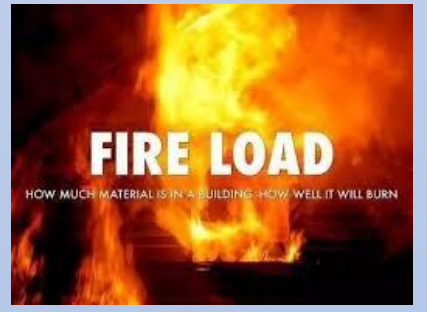
1. What is 'fire prevention and passive fire protection'

- Fire Prevention: Minimise the likelihood and mitigate consequences of fires
  - *Examples:*
    - ❑ Fire loads (minimisation/segregation of fixed and transient combustibles; their location, spatial distribution and properties, etc.)
    - ❑ Ignition sources (minimisation of potential ignition sources, a strict control of any of them, segregation from fire loads, management of hot work, etc.)

- Passive Fire Protection: Prevent the spreading of fires
  - *Examples:*
    - ❑ Compartments and cells
    - ❑ Barriers (walls, doors, dampers)
    - ❑ Ventilation management (smoke, toxic gases, escape/access etc.)

2. Topics of interest

- Management of fire loads and ignition sources
  - ❑ Fire load inventory documentation and management
  - ❑ Roles, responsibilities and frequency of inspections
  - ❑ Fire load input for design and safety analysis
  - ❑ Systematic identification and management of ignition sources
  - ❑ Hot work, including temporary compensation
- Ageing management of SSC's
  - ❑ Inspection, tests and ageing management methods
  - ❑ Lessons learned from inspection and events
- Inspection and functional testing of fire dampers
  - ❑ Approaches, methods for inspection and testing
  - ❑ Frequencies for inspections and tests/findings/replacement & design change
- Ventilation management in case of fire
  - ❑ Ventilations systems and dampers automatization
  - ❑ Operators' actions in case of fire



3. Generic review findings

- Key generic findings on fire prevention:

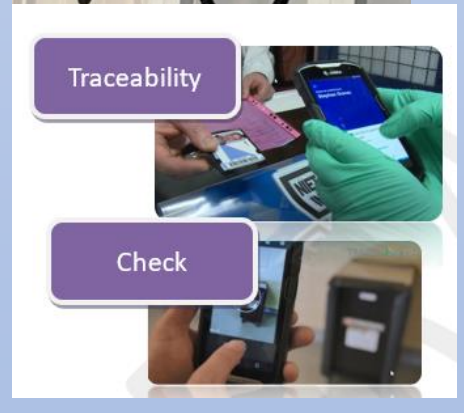
  ❑ **Good practices:**

  ✓ Thermographic cameras equipped with alarms at worksites effective for monitoring and managing ignition sources;

  ✓ Mobile scanning devices enhance fire safety management by enabling the visual identification and inspection of fire loads.

  ❑ **Challenge:**

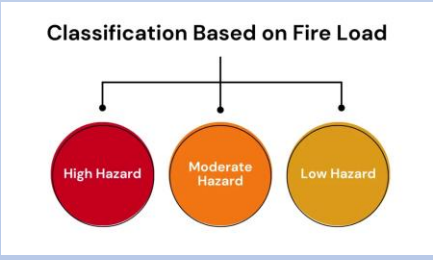
  ✓ A need to consider new types of ignition sources (e.g. lithium-ion batteries)

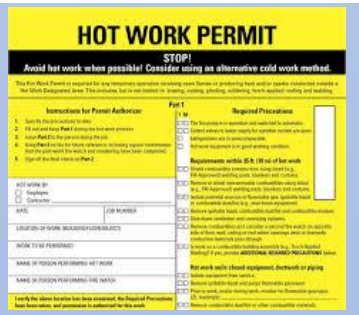


- The peer review did not identify any good practice or challenge on passive fire protection

4. Conclusions

- **Fire prevention:**
  - ❑ Fire load management and ignition source control are key aspects
  - ❑ Importance of **leadership**, accountability and **safety culture** to achieve fire loads minimisation
  - ❑ Use of accountancy **tools**, such as databases, spreadsheets or tools equipped with scanner device support **effective monitoring** and control
  - ❑ Managing ignition sources, such as **hot work**, relies on permit systems and **risk assessments** but as well on the use of **new technology** such as thermographic cameras





Key message: Tools, procedures, permit systems are important, but insufficient without strong leadership and a robust safety culture

4. Conclusions

- **Passive fire protection:**
  - ❑ Relies on **components** including penetration seals, fire doors, and fire dampers
  - ❑ A variety of **regular inspections**, involving visual checks and advanced techniques, and **testing** sustain their operability
  - ❑ Management of **ventilation** is essential, **balancing** between closing fire dampers and maintaining ventilation for **safe evacuation** of personnel and radiological **safety**

Key message: Inspections and operational experience (OPEX) findings frequently lead to the replacement of passive fire protection components

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Use the online chat

Short clarification question at the end of this session

Longer questions in the Q&A session