

Fire Protection

Concept Analysis and Systems

Comprehensive and cost-effective approach for Fire Protection and Hazard Analysis, from the investigation of concepts to the design and supply of integrated and optimized solutions

Challenge

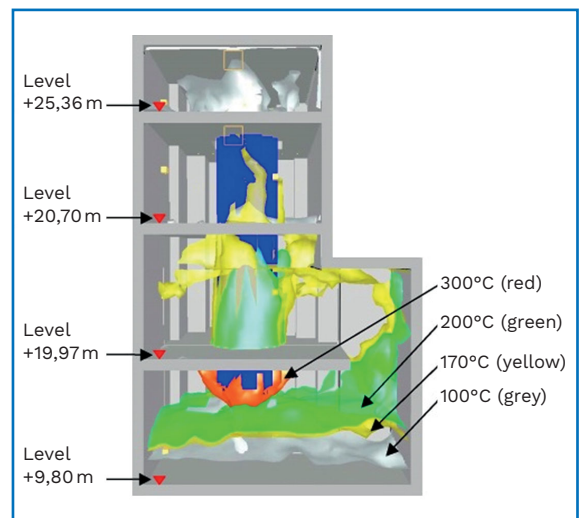
Emerging fires in nuclear power plants (NPPs) can result in a severe damage of plant systems critical for the safe storage of nuclear material.

Spreading fire does not only endanger plant safety and integrity but also plant personnel. The availability of the NPP as well as the functionality of critical protection systems need to be demonstrated during all plant states. The NPP must be able to achieve a safe shutdown in the event of fires caused by internal or external events.

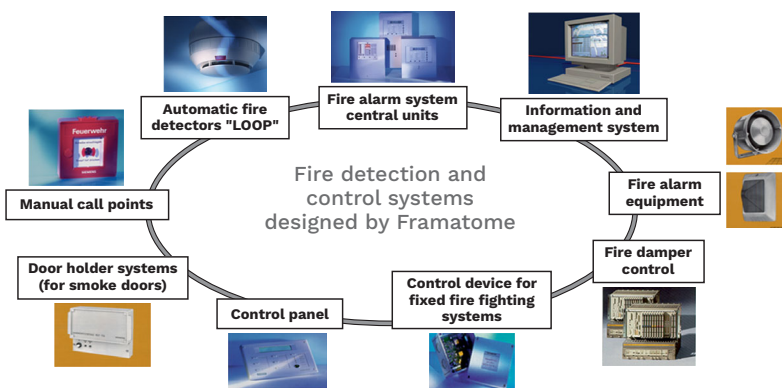
Solution

Our Fire Protection Concepts, Analysis and Systems reduce fire risks, and essentially support plant safety. We provide fire protection measures, customized to client's needs in terms of safety and costs.

- Advanced simulations enable the analyses of potential fires, their probable spread and the damage those might cause. Thus, customized fire protection measures can be derived.
- Fire compartments and their protective system components such as closing elements confine fire within a dedicated area.
- Cable tray encapsulations warrant the operability of safety circuits.
- Detection systems detect initial state fires and activate further protection systems limiting the damage done.
- Fire extinguishing systems (gas and water) essentially reduce fire spreading and in most cases extinguish fires totally.



Fire simulation



Customer benefits

- Reducing fire risks and aligned plant transients
- Mitigating fire damages
- Protecting plant systems and personnel
- Multinational licensing experience
- Comprehensive investigation for safety, personal and investment protection
- Benefit of the combination of the best system design specialists
- Provision of optimized and customized solutions

Your performance
is **our everyday commitment**

Technical information

The scope of supply and services includes:

Fire protection concept

- Fire Protection Concept Analysis
- Fire Hazard Analysis
- Fire load calculation / simulation
- Fire protection drawings
- Explosion protection
- Special studies (environmental issues)
- Client and authority meetings
- Approval process

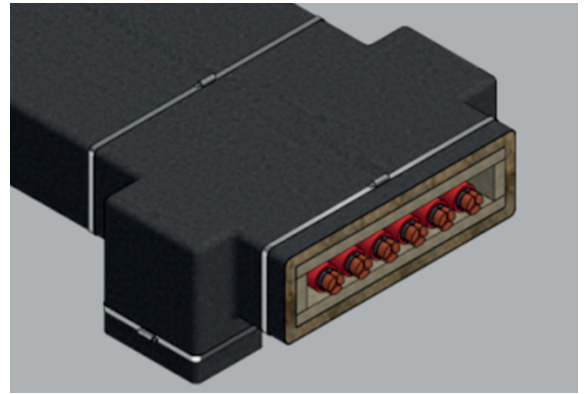
Fire protection systems

- System design of fire detection and control system, water extinguishing systems (spray deluge systems, sprinkler, hydrants, fine spray systems), gas extinguishing systems and mobile extinguishers
- Installation support
- Commissioning support
- Client and authority meetings
- Approval process

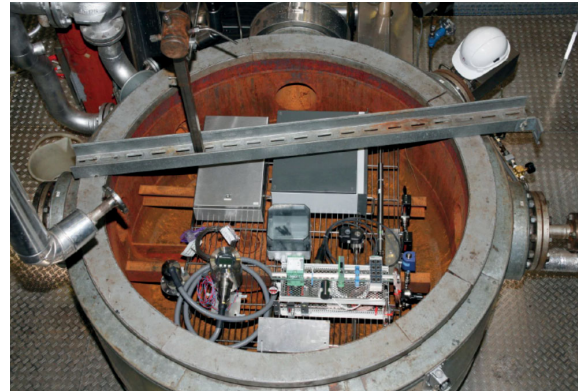
Fire protection components

Engineering, component specification, technical follow-up, procurement support, seismic tests, pressure tests and construction of:

- System components
- Closing elements (piping, cable, etc.)
- Encapsulation of cable trays



Cable encapsulation



Components prepared for pressure testing

Key figures

- Fire safe shutdown systems and circuit analysis
- Computerized combustible tracking and controls programs
- Smoke and heat effects analysis
- Fire probabilistic risk assessment and modeling services
- Accident mitigation analysis

References

- We have multinational licensing experience in all aspects of evaluation, development and implementation of nuclear fire protection programs to satisfy licensing requirements and applicable codes and standards.
- We have performed fire protection and safe shutdown analysis for Framatome-built reactors and further NPPs in Europe, Asia, South America and USA.

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