

Safe extinguishing solution for server rooms and archives

AREVA NP GmbH, Erlangen, Germany



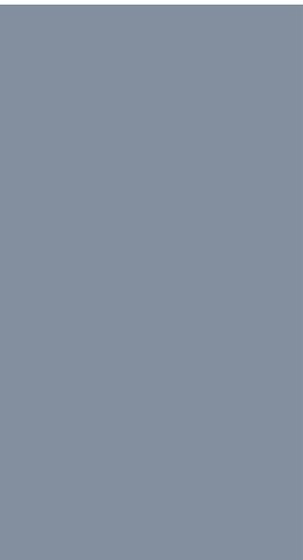
The highest level of safety in sensitive areas as well as reliable protection of people, infrastructure and hardware against the hazards of fire is crucial. The world's market leader in the nuclear power station sector, AREVA NP, decided for an innovative fire safety solution from Siemens to protect its new administration building and infrastructure.

■ The customer

AREVA NP GmbH is a venture by AREVA and Siemens. It has expanded its resources with the completion of a new administration building in Erlangen and created 1,500 new office workplaces. The building covers a gross floor area of about 41,500 square meters. The new building and infrastructure, especially its sensitive areas such as the server rooms and archives needed reliable protection against fire.

■ The challenges

Due to the presence of sensitive areas, such as server rooms or archives, a particularly reliable fire safety solution that at the same time does not damage property was required for the lower level of the new administration building. Damage resulting from extinguishing actions – for example, due to water, must be avoided at all costs. For this reason, the solution derives from a fire safety concept based on nitrogen. The physical design of the lower level and its limited smoke and heat dissipation performance provided the Siemens fire safety experts with particularly difficult challenges. A further critical point was the dense storage of files and microfiches kept on trolleys. When the trolleys are immobile, they are positioned closely next to one another, thereby making accessibility very difficult for extinguishing actions.



■ The solution

Siemens convinced the client with its integrated concept. Smoke and fire detection is implemented throughout the entire building. In the server rooms aspirating smoke detectors are in use. 6 flooding zones – 4 archives and 2 server rooms – are protected against fire by a Sinorix N₂ extinguishing solution. The extinguishing effect of nitrogen is based on the principle of oxygen reduction. The gas has a density that is practically identical to that of the ambient air, meaning that a uniform concentration is obtained in the flooding zone. In emergencies the servers are automatically shut down, the air supply is cut off and the nitrogen extinguishes the fire. There is no damage to the sensitive assets. The nitrogen in the required concentration does not cause any damage, nor does it produce any residue or decomposition products. It is likewise not harmful to people.

The system design for the server rooms includes 2 flooding zones with a total of 39 nitrogen cylinders. If a fire is detected, the appropriate valve is opened by the N₂ control cylinder and the respective room is flooded with the appropriate quantity of nitrogen.

The extinguishing battery for the archives has more than 102 nitrogen cylinders. The safety experts divided the archive into 2 flooding zones in each case in order to ensure adequate supply of gas in areas 1 and 2 of the central archive. As with the server rooms, the relevant selector valves are opened by a control cylinder. At the same time, an alarm is issued in the affected area by means of a pneumatical horn and, after a delay of thirty seconds, nitrogen is released. The resulting overpressure is vented to the open air through overpressure flaps.

The systems were designed in compliance with the VdS planning and installation guidelines.

■ The benefits

AREVA NP relies on Sinorix extinguishing solutions to reliably protect its sensitive areas. Extinguishing with nitrogen not only prevents damage to documents and technical equipment, it is also environmentally friendly and leaves no residues. With Siemens AREVA NP benefits from a strong, reliable partner from planning to successful commissioning.

Highlights

- Challenging conditions regarding building structure and facilities
- Reliable fire safety concept for sensitive server rooms and archives
- Secure Sinorix N₂ extinguishing with more than 140 cylinders
- Nitrogen reliably extinguishes fires by reducing the oxygen
- Nitrogen leaves no decomposition products and residues on valuable assets and is harmless for people
- Strong and reliable partner from planning to commissioning

The information in this document contains general descriptions of technical options available, which do not always have to be present in individual cases. The required features should therefore be specified in each individual case at the time of closing the contract.

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