

## Flooding Protection

### Safety Upgrade to Prevent Flooding Damage

Evaluation, analyses and countermeasures to mitigate potential flooding risks and prevent future damages

#### Challenge

Both nuclear reactor and spent fuel require constant cooling. To fulfil those inherent needs, nuclear power plants (NPPs) must be built in proximity to a virtually undepletable source of water. While the proximity solves the cooling issue, it introduces a set of new challenges. Be it a lake, river or the ocean, all are prone to occasionally flood surrounding areas of land as a result of geological or climate events.

Power plants located in inundation areas can suffer significant damage to electrical systems and components in the event of flooding. Damage to pumps can even result in loss of ultimate sink and the plants cooling capability.

#### Solution

Framatome performs systematic evaluations of external and internal flood hazards based on site characteristics and type of NPP. Through studies and analyses of these potential flood hazards, appropriate countermeasures can be defined. In order to stay compliant with changing rules and regulations, existing systems can be upgraded and requalified.

With adequate countermeasures in place, the risk of systems and components getting damaged in the event of a flood is greatly reduced.

#### Customer benefits

- Prevents loss of ultimate heat sink and cooling capability for reactor and spent fuel pool in case of external and internal flooding
- For all types of reactors: pressurized water reactors including VVER reactors, boiling water reactors and CANDU plants

**Your performance**  
is **our** everyday **commitment**



Silicone sleeve for pipe wall penetrations



Cable wall penetrations

#### Technical information

Typical proceedings and measures are:

- Engineering studies
- Safety analyses
- Securing flood-protected residual heat removal from reactor core and spent fuel pool
- Definition of system-specific countermeasures based on leak detection systems to limit internal flooding risk
- Procurement of flooding-proof components
- Immersion tests and qualification

**Contact:** [integrated-systems@framatome.com](mailto:integrated-systems@framatome.com)  
[www.framatome.com](http://www.framatome.com)

It is prohibited to reproduce the present publication in its entirety or partially in whatever form without prior written consent. Legal action may be taken against any infringer and/or any person breaching the aforementioned prohibitions.

Subject to change without notice, errors excepted. Illustrations may differ from the original. The statements and information contained in this publication are for advertising purposes only and do not constitute an offer of contract. They shall neither be construed as a guarantee of quality or durability, nor as warranties of merchantability or fitness for a particular purpose. All statements, even those pertaining to future events, are based on information available to us at the date of publication. Only the terms of individual contracts shall be authoritative for type, scope and characteristics of our products and services.