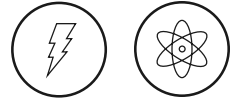




**SNC • LAVALIN**



# Probabilistic Risk Assessments Fire and Seismic

## **SNC-Lavalin Brings Proven and Reliable Global Experience**

Nuclear power plant owners have relied on SNC-Lavalin's expertise and experience to perform comprehensive probabilistic risk assessments (PRAs), severe accident management guidance (SAMG), off-site consequence analyses, and habitability assessments for various nuclear technologies including light water reactors (LWRs) and CANDU® reactors in Asia, Europe, North and South America for over 40 years.

Utilities conduct fire and seismic PRAs for many reasons, including:

- > Improving plant safety
- > Adhering to evolving regulatory requirements
- > Addressing emerging issues, transitioning to NFPA 805
- > Meeting American Society of Mechanical Engineers (ASME) PRA standards and Electric Power Research Institute (EPRI) guidelines
- > Improving plant capacity factors
- > Reducing costs and burdens on operations and risk informed decision-making.

We develop integration models (internal, flood, fire and seismic) for PRA applications such as Risk Monitor and Equipment out of Service (E00S). We successfully meet US regulatory requirements and consistently exceed utility expectations.





Our full service multi-disciplinary LWR engineering services team includes experts in:

- > PRA
- > Reactor Physics and Safety Analysis
- > Seismic
- > Civil
- > Mechanical, including Process Systems and Chemistry
- > Electrical, Control & Instrumentation



## Seismic

In LWR seismic PRA projects, we successfully deliver on time and under budget, garnering excellent feedback from our clients.

Our proven seismic PRA capability includes:

- > US NRC, ASME, and EPRI seismic margin assessment (SMA) methodologies
- > Probabilistic seismic hazard analysis (PSHA)
- > Treatment of uncertainties in soil-structure-interaction (SSI) analysis
- > System modeling, design and operating improvements
- > Site walkdowns and screening (Seismic Qualification Utility Group (SQUG) - qualified and certified)
- > Fragility analysis and conservative deterministic failure margin (CDFM) analysis for structures, systems and components
- > Uncertainty identification of seismic capacity calculation
- > Improving seismic robustness of operating nuclear power plants
- > Extensive training of client engineers at our facilities

## Fire

Our high quality execution of fire PRAs has resulted in long-term collaborative relationships with our clients resulting in an in-depth understanding of their plant specific requirements.

Our proven fire PRA capability includes:

- > Comprehensive experience and application of fire PRAs (US NRC NUREG/CR-6850) and EPRI methodologies
- > Extensive work in fire protection design, fire hazard assessments, fire code compliance with EPRI certified staff
- > Experience in all phases of fire PRA (e.g. initial plant boundary, partitioning, fire modeling, accident sequence quantification, uncertainty and sensitivity analyses)
- > Expertise in Level 1, 2 and 3 analyses and off-site consequence analyses
- > Application of fire consequence modeling with CFAST and fire dynamics tool (FDT)
- > Assessment of fire impact on operator actions to shutdown plant and perform cool downs
- > Application of circuit analysis to verify dominant contributors



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Please contact us to discuss how our expertise can support your current or upcoming needs.

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