

## Radiation Protection at the design stage of nuclear installations

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Taking radiation protection into account in the design of a nuclear facility requires a multi-stage approach:

1. Identification of the radiological risks (exposure of workers) encountered during all phases of the facility's life and during the various operating situations likely to be encountered by it (including incidental or accidental operation).
2. Assess radiological hazards: external exposure, airborne and surface contamination.
3. Determine design provisions (risk-related countermeasures) to eliminate risk or achieve residual risk levels as low as reasonably achievable: zoning and monitoring actions, specific provisions for internal exposure, specific provisions for external exposure (action on sources, time, screen, distance).
4. Select the optimum paradises based on qualitative or quantitative criteria, using decision-support methods where necessary.

This presentation will detail the various stages and illustrate, in particular, the protective measures relating to buildings, layout and equipment design. Elements of decision-aiding methods in the particular case of determining biological protection will also be presented.