

IAEA Safety Standards for Nuclear Installation Siting and Design against External Hazards

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IAEA

International Atomic Energy Agency

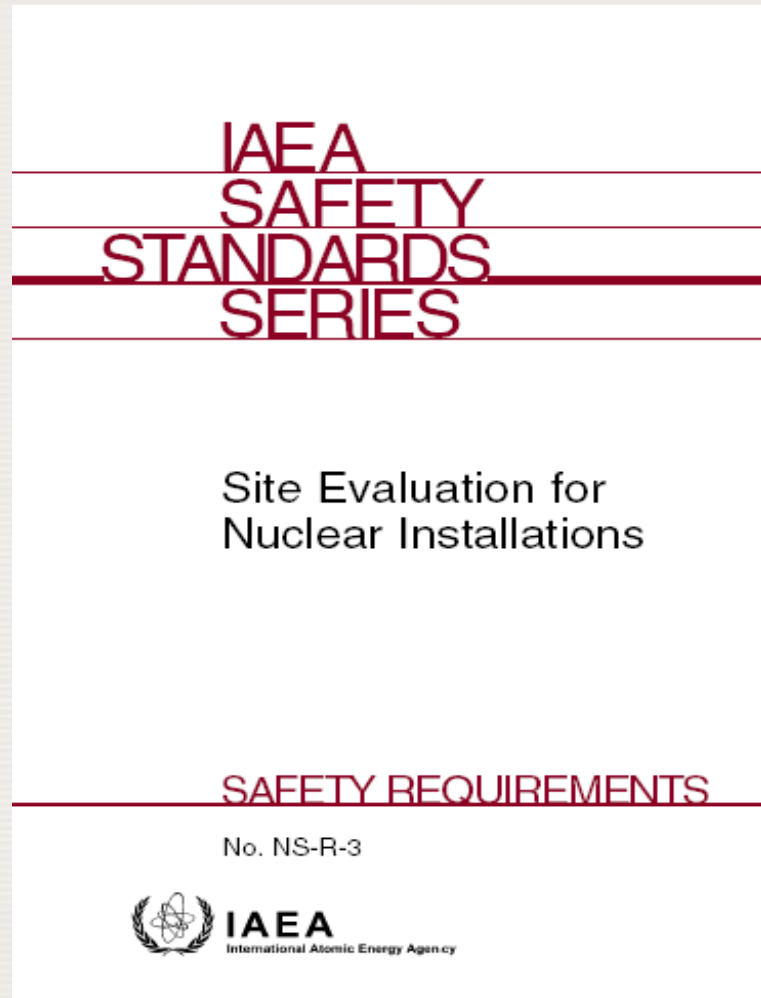
Content:

- IAEA Safety Standards: Categories
- IAEA Safety Requirements for Siting
- IAEA Safety Guides (Site Evaluation)
- IAEA Safety Guides (Hazard Assessment)
- IAEA Safety Guides for Installation Design
- Utilization of the Safety documents in peer reviews and your safety document preparation

Categories of Safety Standards

- Safety Fundamentals - concepts
- Safety Requirements – what “ shall” be done
- Safety Guides – how “ should” it be done

IAEA Safety Requirements for Siting

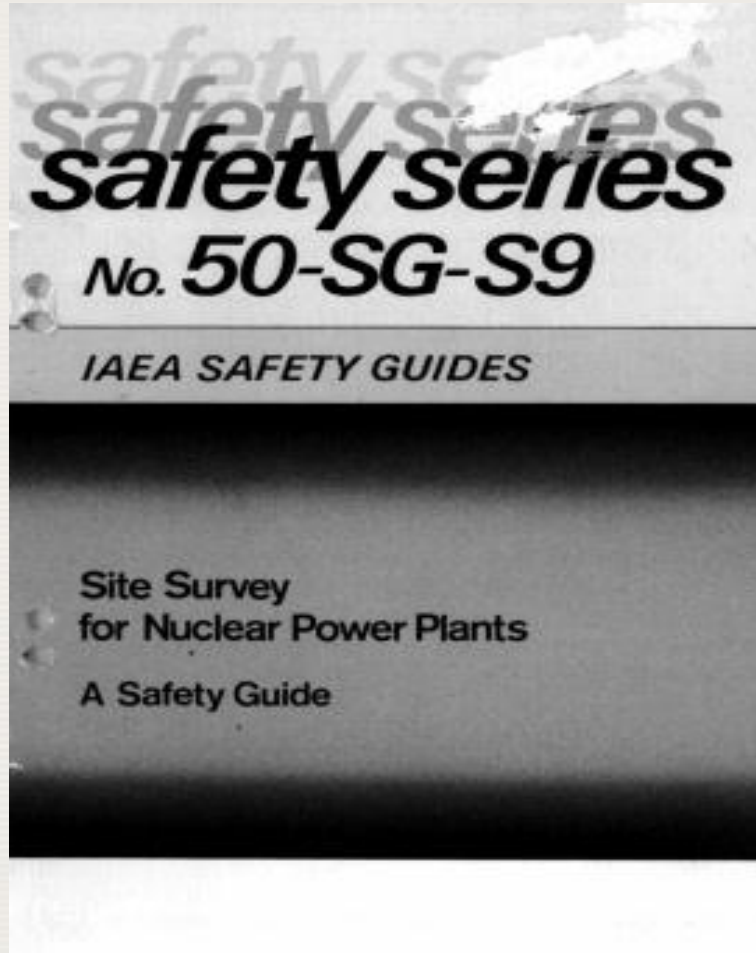


Identifies those requirements that shall be satisfied by the chosen site to support the construction and safe operation of the nuclear installation without detrimental effects on the environment and the public

IAEA Safety Requirements for Siting

- Identifies the key safety considerations for the selected site
- Identifies the external hazards that need to be considered and their quantification so that it can be used in the installation design
- Identifies the effect of the installation on the environment in how it affects the local population

IAEA Safety Guide on Site Selection



Site Survey and Site Selection (revision of 50-SG-S9), DS433 draft in preparation

IAEA Safety Guide on Site Selection

- The site selection guide provides:
 - A systematic process for selecting and ranking alternate sites
 - Uses the basic safety requirements for the site as criteria
 - Includes non safety considerations –
 - availability of infrastructure
 - Socioeconomic demands

IAEA Safety Guides (Site Evaluation)

IAEA Safety Standards
for protecting people and the environment

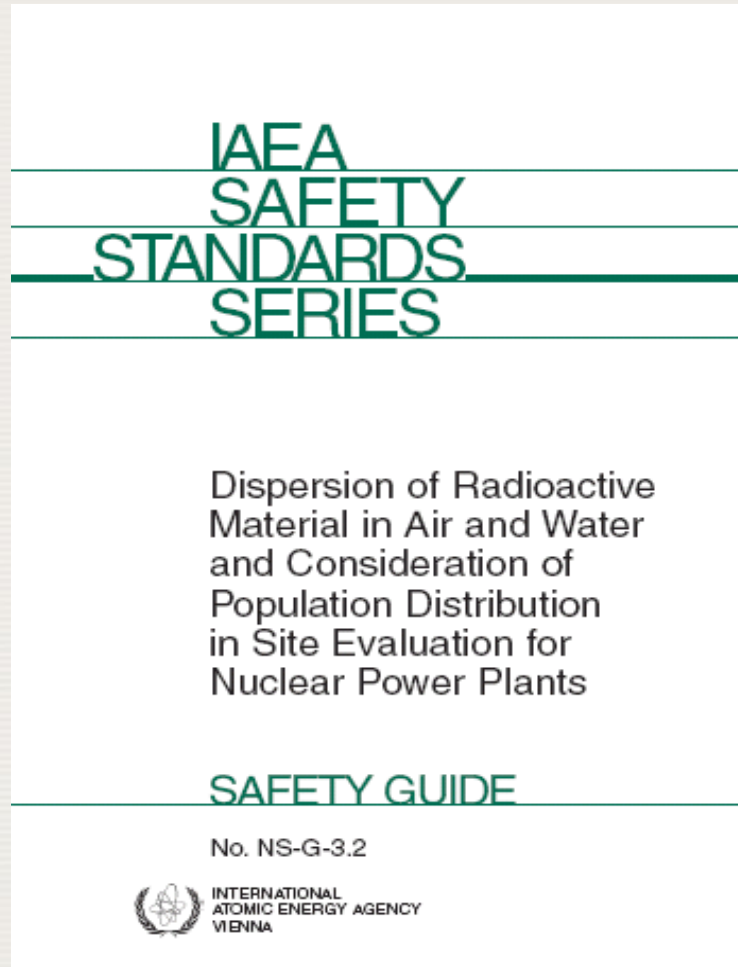
Geotechnical Aspects
of Site Evaluation
and Foundations for
Nuclear Power Plants

Safety Guide
No. NS-G-3.6



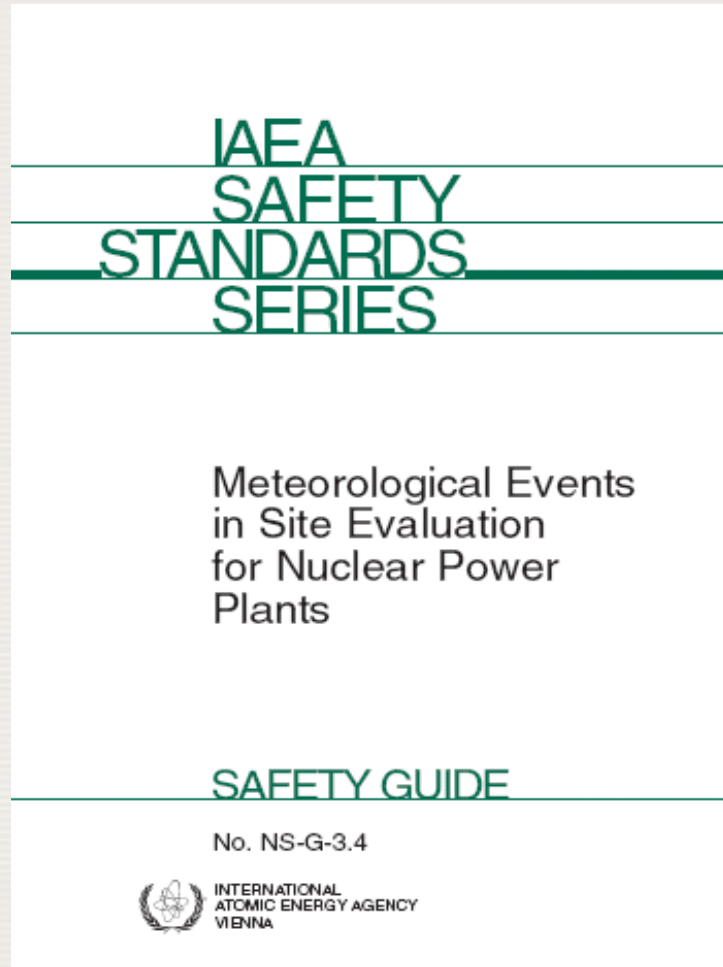
Evaluates the ability of the site to support the installation under all operating conditions during the hazards to which the installation maybe exposed to by it being located in this location

IAEA Safety Guides (Site Evaluation)



Evaluates the site specific conditions that effect spreading of radioactive material if released from the installation through the environment and its impact on the population distribution around the installation

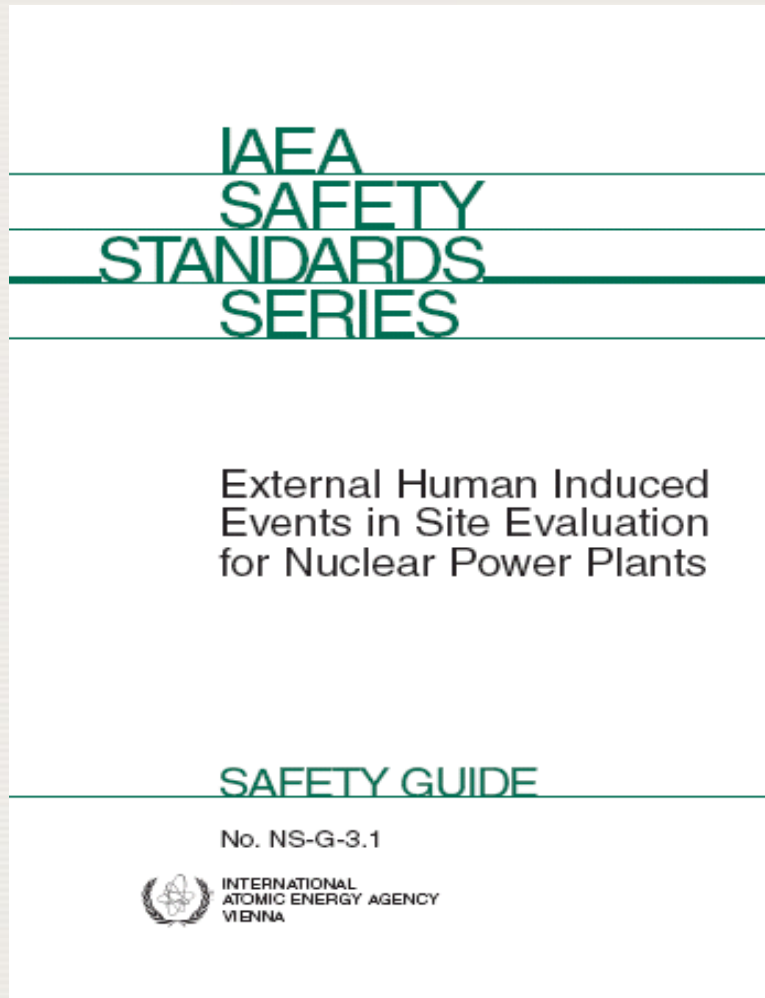
IAEA Safety Guides (Site Evaluation)



Evaluates the
Meteorological events
that affect the site and
its impact on the
nuclear installation

Guide Series No. NS-G-
3.4 has been merged
with NS-G-3.5 in DS-
417 – in publication

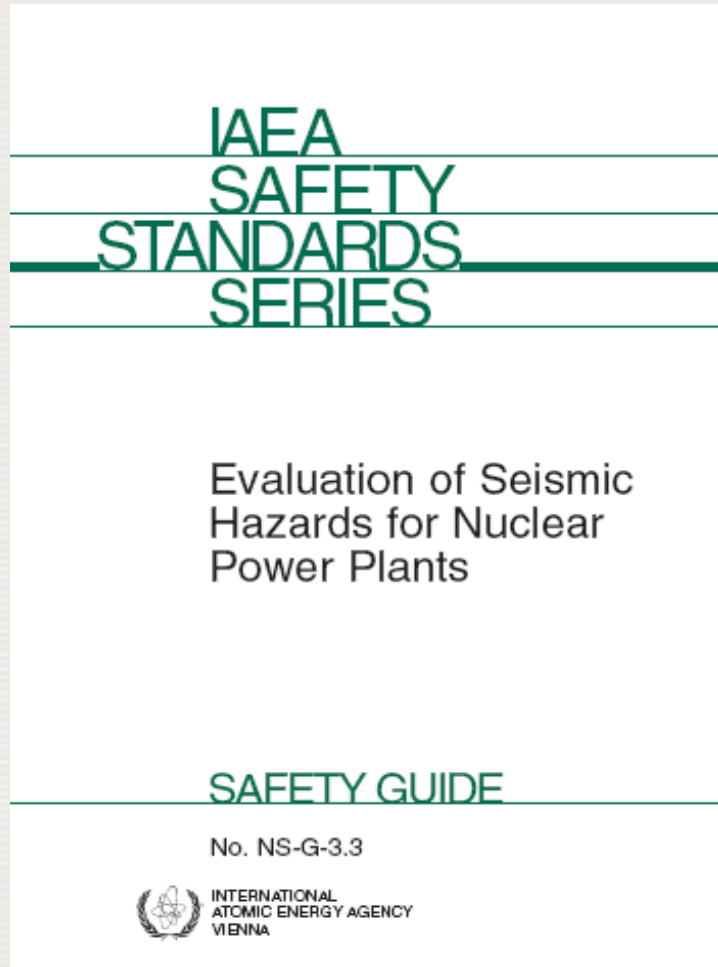
IAEA Safety Guides (Hazard Assessment)



Quantifies the effect of human activity in the proximity of the site for use in design

Considers transportation lanes and operations involving toxic and explosive material which have the potential for impacting the installation

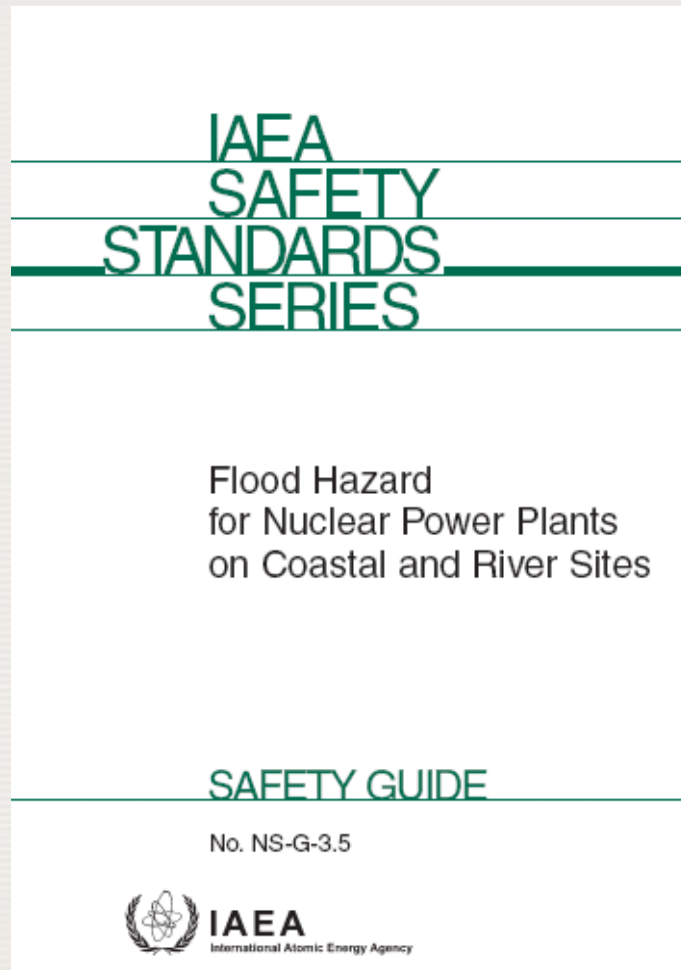
IAEA Safety Guides (Hazard Assessment)



Quantifies the potential level of seismic activity at the site for use in the design of the installation

The quantification can be represented in deterministic or probabilistic terms

IAEA Safety Guides (Hazard Assessment)



Quantifies the Flooding potential for the site from Coastal and River natural phenomenon and from sources that maybe induced by other hazards (Merged with NS-G-3.4 in DS-417 – in publication)

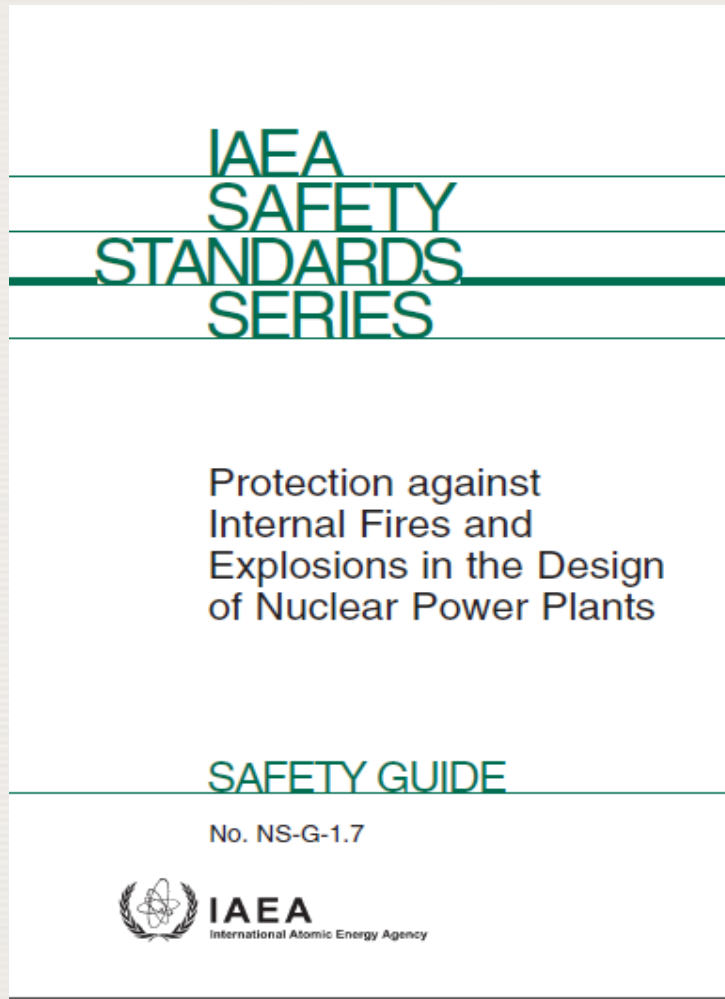
IAEA Safety Guides (Hazard Assessment)

Quantifies hazards from Volcanic activity that may affect the safety of the installation or its safe operation as a result of volcanic activity



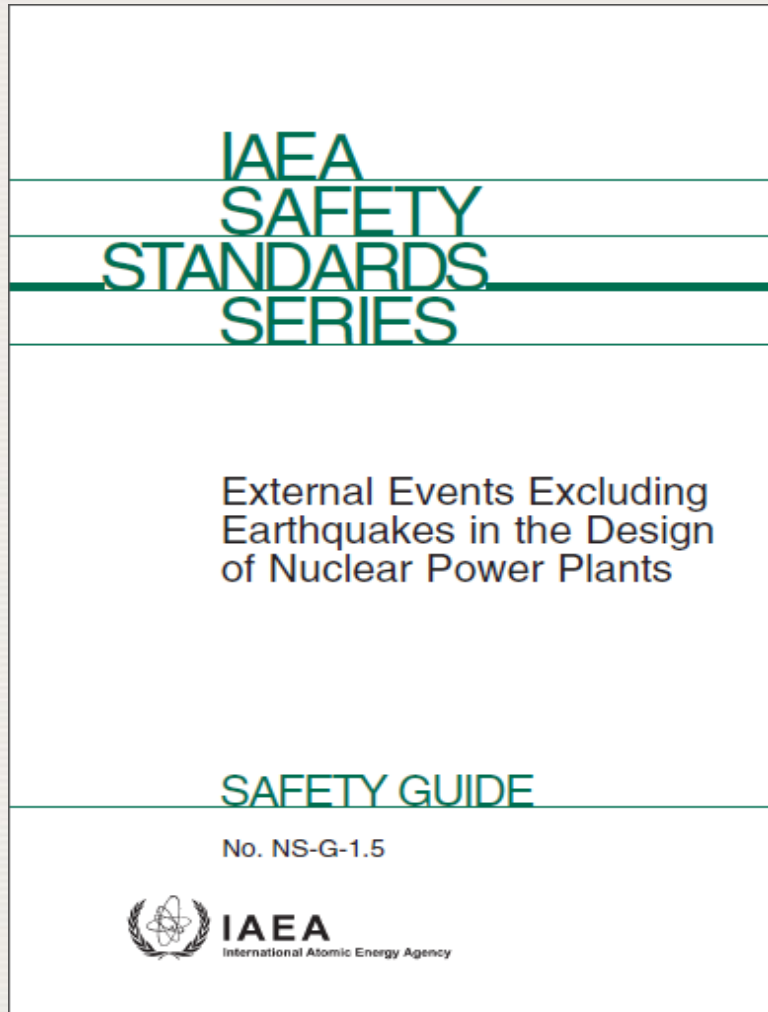
(DS405 – in publication)

IAEA Safety Guides for Installation Design



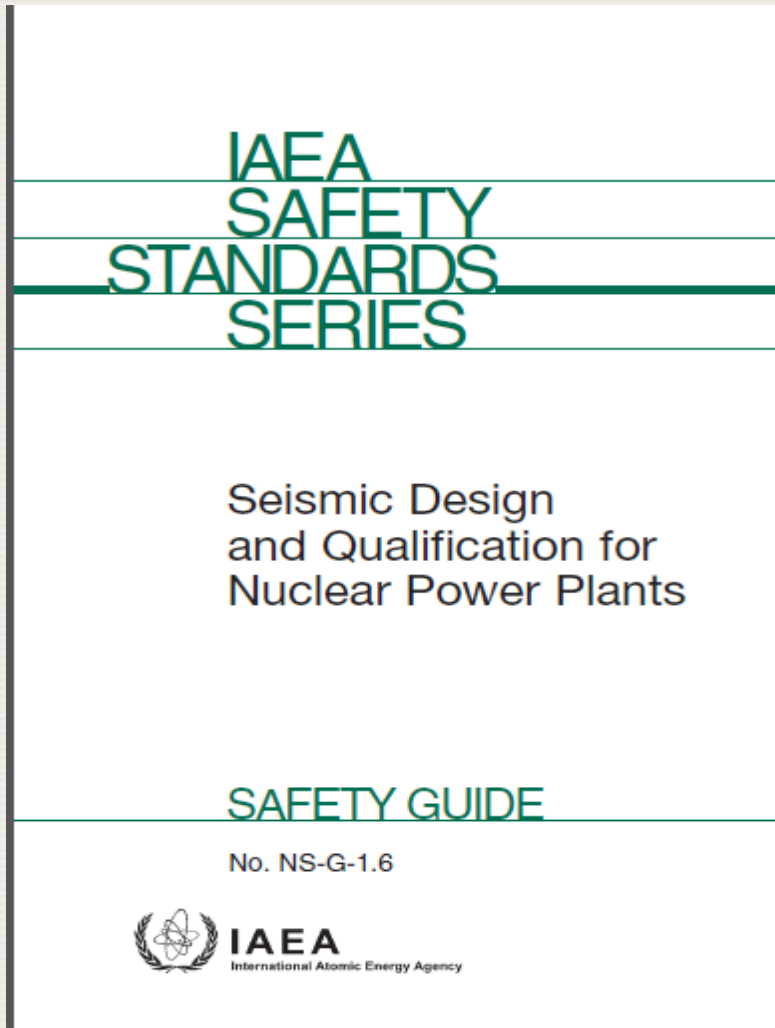
Recommends design methodology for Protection Against Internal Fires and Explosions in the Design of Nuclear Power Plants Safety Guide Series No. NS-G-1.7

IAEA Safety Guides for Installation Design



Recommends
methodology for
design against
External Events
Excluding Earthquakes
in the Design of
Nuclear Power Plants
Safety Guide Series
No. NS-G-1.5

IAEA Safety Guides for Installation Design



Recommends design methodology for Seismic Design and Qualification for Nuclear Power Plants structures, systems and components

Safety Guide Series No. NS-G-1.6

IAEA Safety Guides for Installation Design

IAEA Safety Standards

for protecting people and the environment

Evaluation of Seismic
Safety for Existing
Nuclear Installations

Safety Guide

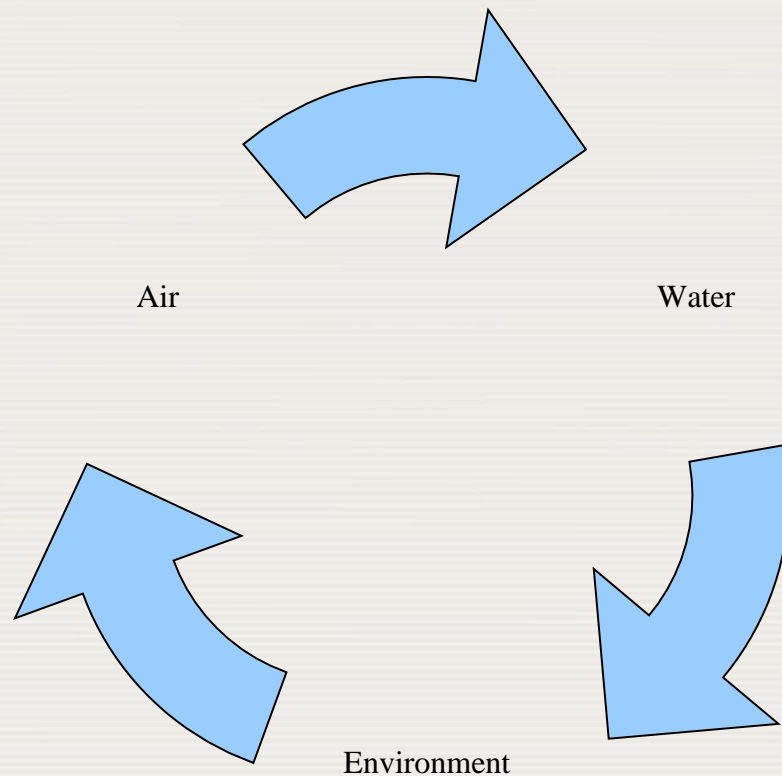
No. NS-G-2.13



Provides a methodology
for the Evaluation of
Seismic Safety for
Existing Nuclear
Installations

Safety Guide Series No.
NS-G-2.13

IAEA Safety Guide on Environmental Impact Assessment



- Dispersion in Air and Water and Environmental Impact Assessment (DS427), draft in preparation in cooperation with NSRW

Utilization of the Safety Document

The requirements document provide you with the basis for regulations

- On site selection
- Writing of regulations for siting and design
- On hazard selection and assessment process
- In evaluating the effect of the installation on the environment and the local population

Utilization of the Safety Document

- Design of structures, systems and components
- Re-evaluation of the site hazards
- Re-evaluation of installations

ISSC services to assist you

- **Site selection process review:** Provides the MSs with an independent review of the adherence to the IAEA guidance on the subject and the appropriateness of the selection of exclusion and screening criteria, and their use in the ranking of the sites.
- **Integrated site evaluation review:** A multidisciplinary review which address all the requirements that a site has to meet for the construction of a nuclear installation. Provides the MSs with an independent review of the adherence to the IAEA safety requirements and the level of detail in site investigation to establish the site's capacities to support the installation's design needs.

ISSC services to assist you

- **Site hazard evaluation review:** Provides the MSs with an independent review of the adherence to the IAEA safety requirements and the level of detail in site investigation to establish the appropriate estimate of a specific hazard at the site during the lifetime of the installation.
- **Safety Review of SSC's against external and internal hazards:** Provides the MSs with an independent review of the adherence to the IAEA safety requirements in the design of SSC's to meet the demands of the site specific hazard.
- **Site Environmental Assessment Review:** Provides the MSs with an independent review of the adherence to the IAEA environmental assessment requirement.

Thank You

