

Training Course on the IAEA Safety Standards Overview

Nuclear Safety and Security Online User Interface (NSS-OUI)

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Nuclear Safety and Security Online User Interface (NSS-OUI)

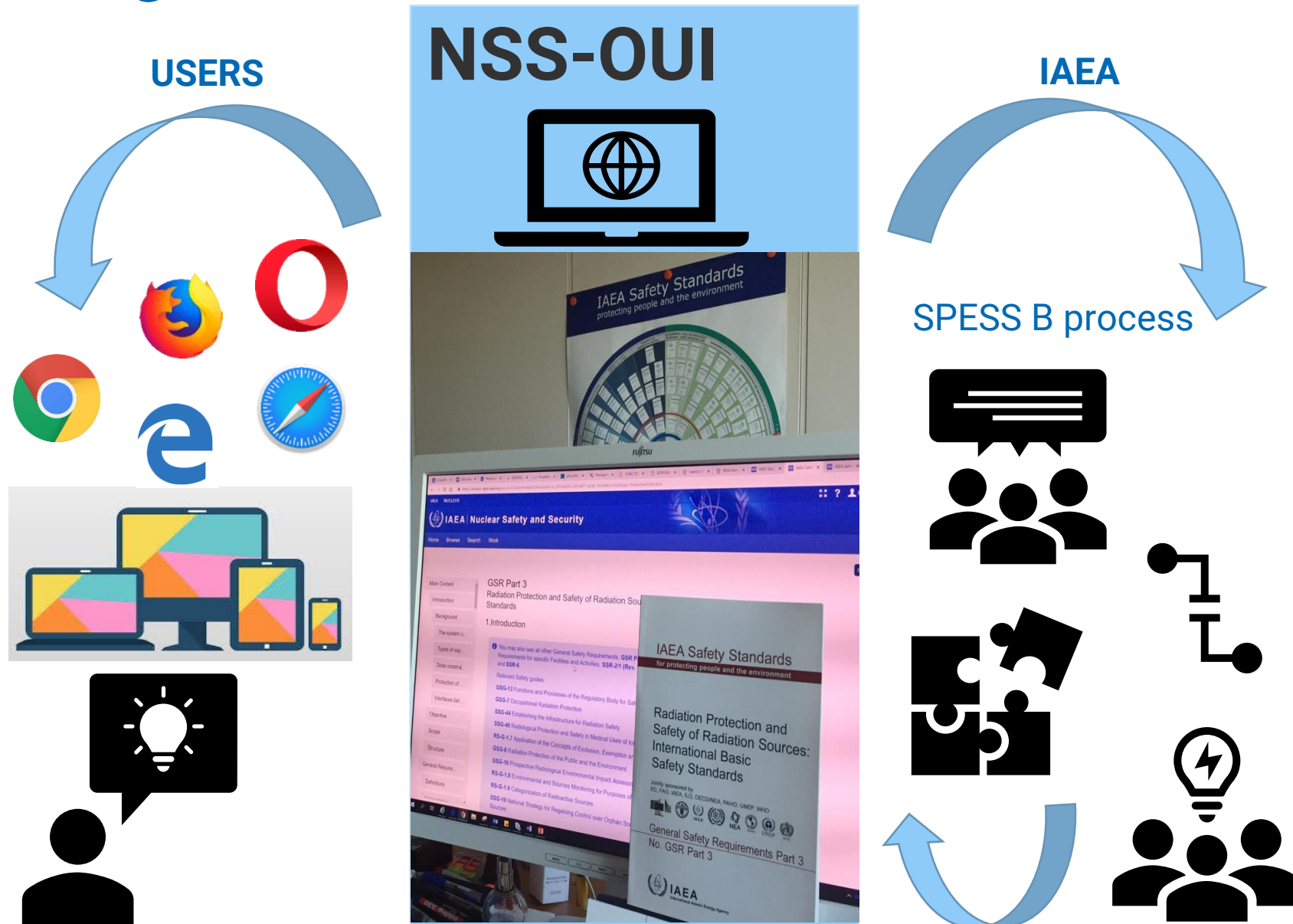
Is the **KNOWLEDGE and CONTENT** management system for the IAEA Safety Standards and Nuclear Security Guidance

- Officially initiated in 2012
- User documentation: SPESS E
- Contains all Safety Standards and Nuclear Security Series publications, available for search and navigation
- Is used for collecting feedback and comments on existing publications

The Purpose of the NSS-OUI platform

- To enable easy access to the content of IAEA Safety Standards and Nuclear Security Guidance publications
- To reflect new information on new publications and additional resources
- To maintain technical consistency and manage publications as series
- To ensure semantic consistency and harmonized terminology
- To systematically collect feedback and ensure stability of the content that does not need revision
- To potentially support revision projects for IAEA Safety Standards and Nuclear Security Guidance.

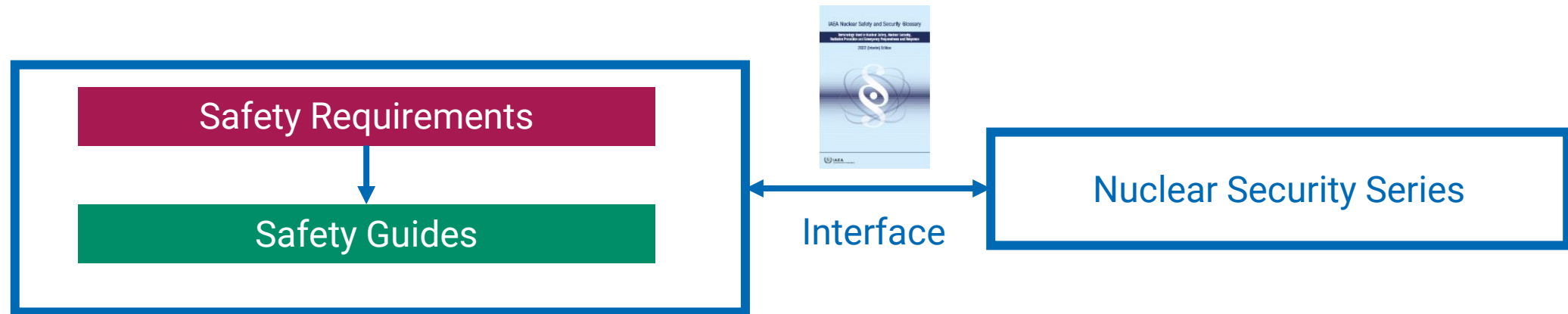
The Image of NSS-OUI



Content and relationship management through metadata and explicit relationship notes

The safety standards:

- Are a set of publications.
- Are consistent with one another and interrelated, i.e. Safety Guides provide example recommendations to fulfil the Safety Requirements.
- Interface with the Nuclear Security Series.



NSS-OUI enables users to easily understand **Topical - Hierarchical - Semantic relationship** between the safety standards and the Nuclear Security Series.

Summary on benefits from using NSS-OUI

- Search through entire collections
- Relationships and links between requirements and corresponding recommendations
- Hyperlinks to definitions from the IAEA Glossary
- Updates on newly published Standards and other IAEA publications
- Free access at any time and any place (no sign in)
- For more details, check out [NSS-OUI Users' Demo](#)



Using NSS-OUI

Browse and search the content

- Find related publications in the series
- Find parts of other publications that address the same subject
- Find all requirements relevant to the subject area
- Find the exact wording used, for consistency
- Overall recommendations for security

Search Overarching Requirements (ORs)

SSR-2/1 (Rev. 1) Requirement 31: Ageing management



SSR-2/2 (Rev.1) Requirement 14: Ageing management



SSR-3 Requirement 37: Design for ageing management



SSR-3 Requirement 86: Ageing management



SSR-4 Requirement 32: Design considerations for the management of ageing



SSR-4 Requirement 60: Ageing management



Using NSS-OUI

Information notes

- updated regularly when a new Safety Standard or Nuclear Security Series publication is published, or additional resource becomes available.

SSR-2/1 (Rev. 1)
Safety of Nuclear Power Plants: Design

1.3. It might not be practicable to apply all the requirements of this Safety Requirements publication to nuclear power plants that are already in operation or under construction. In addition, it might not be feasible to modify designs that have already been approved by regulatory bodies. For the safety analysis of such designs, it is expected that a comparison will be made with the current standards, for example as part of the periodic safety review for the plant, to determine whether the safe operation of the plant could be further enhanced by means of reasonably practicable safety improvements.

i All the General Safety Requirements, [GSR Part 1 \(Rev. 1\)](#), [GSR Part 2](#), [GSR Part 3](#), [GSR Part 4 \(Rev. 1\)](#), [GSR Part 5](#), [GSR Part 6](#) and [GSR Part 7](#) are also applicable, as well as the Specific Safety Requirement [SSR-1](#) on Site Evaluation for Nuclear Installations and [SSR-2/2 \(Rev. 1\)](#) on Safety of Nuclear Power Plants: Commissioning and Operation.

Here below, in front of specific requirements, you will also find information on the relevant Safety Guides for these specific topical areas.

✓ You may also wish to read:

[TECDOC No. 1936](#) on Applicability of Design Safety Requirements to Small Modular Reactor Technology Intended for Near Term Deployment

[TECDOC No. 1791](#) on Considerations on the Application of the IAEA Safety Requirements for the Design of Nuclear Power Plants

[IAEA Services Series 41](#) Technical Service Review (TSR) Service Guidelines, Vienna 2019

Objective

1.4. This publication establishes design requirements for the structures, systems and components of a nuclear power plant, as well as for procedures and organizational processes important to safety that are required to be met for safe operation and for preventing events that could compromise safety, or for mitigating the consequences of such events, were they to occur.

Using NSS-OUI

Glossary definitions

- Hyperlinks to definitions from the IAEA Glossary with pop-ups

Requirement 6: Operational

The operating organization shall maintain the plant in a state of readiness to operate under the conditions.

Definition

A deviation of an operational *process* from *normal operation* that is expected to occur at least once during the *operating lifetime* of a *facility* but which, in view of appropriate *design* provisions, does not cause any significant damage to *items important to safety* or lead to *accident conditions*.

Scope notes

- Examples of *anticipated operational occurrences* are loss of normal electrical power and faults such as a turbine trip, malfunction of individual items of a normally running plant, *failure* to function of individual items of *control* equipment, and loss of power to the main coolant pump.
- Some States and organizations use the term abnormal operation (for contrast with *normal operation*) for this concept.

4.6. The operational limits and conditions shall form an important part of the basis for the authorization of the operating organization to operate the plant. The plant shall be operated within the operational limits and conditions to prevent situations arising that could lead to anticipated operational occurrences or accident conditions, and to mitigate the consequences of such events if they do occur. The operational limits and conditions shall be developed for ensuring that the plant is being operated in accordance with the design assumptions and intent, as well as in accordance with its licence conditions.

Feedback and Comments on the safety standards

Central feedback mechanism to collect and retrieve feedback Comments and proposals from authorized experts to possible review and revision

Requirement 10: Control of plant configuration

The operating organization shall establish and implement a system for plant configuration management to ensure consistency between design requirements, physical configuration and plant documentation.

4.38. Controls on plant configuration shall ensure that changes to the plant and its safety related systems are properly identified, screened, designed, evaluated, implemented and recorded. Proper controls shall be implemented to handle changes in plant configuration that result: from maintenance work, testing, repair, operational limits and conditions, and plant refurbishment; and from modifications due to ageing of components, obsolescence of technology, operating experience, technical developments and results of safety research.

See also:
[NS-G-2.14](#) Conduct of Operations at Nuclear Power Plants

Requirement 11: Management of modifications

The operating organization shall establish and implement a programme to manage modifications.

4.39. A modification programme shall be established and implemented to ensure that all modifications are properly identified, specified, screened, designed, evaluated, authorized, implemented and recorded. Modification programmes shall cover: structures, systems and components; operational limits and conditions; procedures; documents; and the structure of the operating organization. Modifications shall be characterized on the basis of their safety significance. Modifications shall be subject to the approval of the regulatory body, in accordance with their safety significance, and in line with national arrangements.

Add feedback

Comment

Proposal

Me

DRAFT

Comment

Reason (optional)

Cancel

Save

Submit

Electronic IAEA Nuclear Safety and Security Glossary, 2022 Edition



SPARQL

IAEA Nuclear Safety and Security Glossary

A B C D E F G H I J K L M N O P Q R S T U V W []

HTML

VISUAL

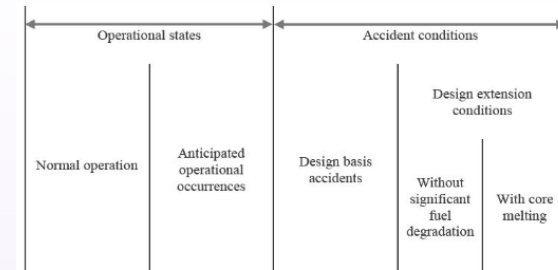
plant states - Also: plant state

<https://kos.iaea.org/iaea-safety-glossary/594>

[Reference List](#)

Definition

plant states (considered in design)



Notes

- The entries that follow (terms and definitions) relate to consideration at the *design* stage (i.e. by means of hypothetical scenarios)
- Care needs to be taken to select, use and relate defined terms and other words in such a way that clear distinctions are drawn and may be inferred between, for example: events and situations (see the entry for *event*); *accidents* and other *incidents*; what is actual (i.e. what is), possible (i.e. what might be) or potential (i.e. what could become), and what is hypothetical (i.e. what is postulated or assumed); and what is observed or determined objectively, and what is decided or declared subjectively.
- 'Conditions', for example, is used in terms in the sense of rules set in *design* (as in *operational limits and conditions*) and also circumstances of *operation* (as in plant conditions); and in terms used in both *design* and *operation* (e.g. in *accident conditions*, *service conditions*).
- Drafters and reviewers thus need to bear in mind whether text concerns *design* or *operation*, or both. The potential, the postulated or the assumed in *design* needs to be distinguished from the observed or the determined in *operation*; and the decided on or declared (such as an *emergency*), in both *design* and *operation*, needs to be distinguished from the former (i.e. the potential, the postulated, the assumed, the observed and the determined).
- The concept of *facility states* as it is used in the *safety standards* for *research reactors* and for *nuclear fuel cycle facilities* is broadly equivalent to the concept of *plant states* for nuclear power plants. Unless otherwise indicated, the definitions of terms grouped under '*plant states*' apply for nuclear power plants, *research reactors* and *nuclear fuel cycle facilities*.

Broader

Narrower

anticipated operational occurrence
controlled state
design extension conditions
normal operation
operational states
safe state
accident conditions
beyond design basis accident
design basis accident

Related concepts

uncertainty
facility states
probabilistic safety assessment
model
event

E-learning Courses on IAEA Safety Standards

The screenshot displays the IAEA Learning Management System (LMS) interface. At the top, the IAEA logo and 'Learning Management System' are visible, along with a language dropdown set to 'English (en)'. The breadcrumb trail reads: Home > Courses > Nuclear Safety & Security > Nuclear Safety > IAEA Safety Standards.

The main content area is titled 'Hierarchy of the IAEA Safety Standards' and features a pyramid diagram with three levels: 'SAFETY FUNDAMENTALS' (top, blue), 'SAFETY REQUIREMENTS' (middle, red), and 'SAFETY GUIDES' (bottom, green). To the right, the 'IAEA Safety Standards Overview' section provides a brief description of the course and a 'Click to enter this course' button.

Below this, two more course cards are shown:

- IAEA Safety Standards General Safety Requirements Part 1 (Revision 1): Governmental, Legal and Regulatory Framework for Safety**
The purpose of this course is to instruct participants on the safety requirements of GSR Part 1 (Rev. 1). This includes the Fundamental Safety Objective that the requirements are the responsibilities for safety assigned to the government, the regulatory body and the operating organizations.
[Click to enter this course](#)
- IAEA Safety Standards General Safety Requirements Part 2: Leadership and Management for Safety**
The purpose of this course is to instruct participants on the safety requirements of GSR Part 2. This includes the Fundamental Safety Objective that the requirements are based on differences between management and leadership, safety culture and how the management system, leadership and safety culture support each other to enhance safety.
[Click to enter this course](#)

Contents

- Safety Standards Overview
- GSR Part 1 (Rev. 1)
- GSR Part 2
- GSR Part 3
- GSR Part 4 (Rev. 1)
- GSR Part 5 and GSR Part 6
- GSR Part 7
- SSR-1
- SSR-2/1 (Rev. 1)
- SSR-2/2 (Rev. 1)
- SSR-3
- SSR-4
- SSR-5

In 2024, the IAEA finalized the set of e-learning modules for all General Safety Requirements and Specific Safety Requirements.

IAEA E-learning links

IAEA E-learning Catalogue

https://www.iaea.org/online-courses?type=All&tid=All&language=All&certificate_of_completion=All&keywords=safety+standards

Sign up for a Nucleus account to access all courses

<https://elearning.iaea.org/m2/course/index.php?categoryid=151>



Thank you!

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