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Quality Management System – Safety Standards and Security Guidance Development Section					
Knowledge and Content Management System, Feedback mechanism, NSS-OUI IT Platform for the Review/Revision and Publication Process for the Safety Standards Series, the Nuclear Security Series and other NS publications					
https://nucleus-apps.iaea.org/nss-oui					
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A. INTRODUCTION

A.1. Background

The SPESS A section 2 part I describes the objectives and main conceptual features of the system put in place in 2015 for the knowledge and content management system, the feedback collection and analysis mechanism, the online user interface (NSS-OUI IT platform) for the access to the content of the Nuclear Safety and Security (NS) Department publications and for their review/revision and subsequent publication as electronic version. The system is designed to be applied for both the IAEA Safety Standards Series and the Nuclear Security Series.

The objectives of the system are:

- To ensure that the review and revision of publications in the IAEA Safety Standards Series and in the Nuclear Security Series are informed by a systematic process of collection and analysis of feedback.
- To ensure that any revision of publications or parts of publications is justified by the above-mentioned feedback process, therefore also ensuring stability of the parts of the standards and guidelines that remain valid.
- To maintain technical consistency between publications by managing them as a series.
- To enhance consistency through the systematic use of harmonized terminology.
- To ensure comprehensive coverage by means of a systematic ‘top-down’ approach to review and revision complemented by topical gap analyses.
- To support the harmonized use and application of the IAEA Safety Standards Series and Nuclear Security Series publications by enhancing their user-friendliness and by providing tools for users to easily navigate within the series.
- To provide users with up-to date information on superseded guidance and references.

The main components of the system are:

- A content management system for managing the series, the content of the publications and their relationships.
- A knowledge management system to manage the feedback on existing publications and to support its analyses.
- An Online User Interface (NSS-OUI) that facilitates access to the content of the publications, enables online navigation through the series and provides an advanced topical and contextual search capability.
- A Knowledge Organization System (KOS) which assures systematic usage of controlled vocabulary and provides definitions.

A.2. Objective

The objective of this manual is to describe in more details the main components of the NSS-OUI platform, how to introduce the publications into the system, how to characterize the content by topical areas and by context, how to describe and document explicit relationships between publications, how to establish relationships with the definitions from the glossaries and how to collect and analyze feedback on the current set of publications.

A.3. Scope

This manual is applicable primarily to the IAEA Safety Standards Series and the Nuclear Security Series. It also provides guidance on how to expand the use of the system for other publication series, like safety reports and TECDOCs to benefit from the advanced search capability that it offers.

A.4. Structure

The section B describes the main concepts and features that form the design basis of the system.

The section C is related to the establishment and maintenance of the ontology¹, i.e. the set of topical and context related metadata, including their relationship, used to characterize the content and the context applicability of the relevant part of the publications introduced into the NSS-OUI platform.

The section D covers the methodology to document, in addition to the text of the publication and the references it already includes, other relevant explicit relationship between publications, i.e. explicit relationship like from Safety Requirements to Safety Guides, at different levels (from a publication to another publication, from a chunk in a publication to another publication or from a chunk in a publication to a chunk in another publication). The intent is to facilitate the navigation within the whole set of publications.

The section E covers the introduction of the glossary (glossaries) into the system, the identification of defined terms in the publications and the establishment of the relationship between the content of the publications and the definitions of terms.

The purpose of the sections C, D and E is to highlight those important aspects that are necessary for the knowledge and content management system, for the efficiency of the search modes and for the user-friendliness of the electronic versions (html and others) of the publications available with the NSS-OUI platform. These sections do not provide detailed guidance on how to use the Finto XML Editor. This is covered by other guidance material for, and dedicated training of, the Technical Officers.

The section F covers the use of the NSS-OUI platform to document any feedback received on the current set of publications, starting by identifying several sources of feedback. It then addresses the two main ways of extracting and analyzing the feedback accumulated.

The section G covers the process management flows to support the review, revision and approval processes.

The section H describes the responsibilities associated with the different tasks in the operation and maintenance of the platform and allocation of access rights to internal and external users.

¹ Ontology - a rigorous and exhaustive organization of some knowledge domain that is usually hierarchical and contains all the relevant entities and their relations, www.vocabulary.com

B. MAIN CONCEPTS AND FEATURES

B.1. General concept

The initial concept development was based on the recognition that, after more than sixty years of history on the IAEA Safety Standards, the main activities moved from the establishment of new standards to the revision of the set of existing standards. This led to the need to set up a systematic and centralized mechanism to collect the feedback on the use of the standards and to identify a methodology to analyse this feedback and to use it as a main basis for the revision of existing standards.

While this evolution was mainly relevant for the Safety Standards Series, it appears that, for the Nuclear Security Series also, there are publications being revised. The approach was thus generalized to apply to both Series.

The first conceptual developments made in 2010 were therefore to propose a mechanism to collect the feedback in a centralized storage place, to characterize each new feedback by identifying the topical areas this related to, to identify where these topical areas are addressed or should be addressed in the publications and therefore prepare the feedback analysis and its implications for the revision of the standards.

In parallel, recognizing that several publications address similar topical areas, it was also proposed to move, where appropriate, from a document by document revision process to a topic-oriented revision process for several parts of several publications to maintain consistency for these topical relationships.

This resulted in the design of a content management system to characterize the content of the publications by identifying which topical areas are addressed in these publications and the design of a knowledge management system, based on the same set of topical areas, to characterize the feedback, thus establishing the link between the feedback and the content of the publications.

A pilot study conducted in 2011-2012 with the revision of the Safety Requirements WS-R-5 on Decommissioning (DS450) and the corresponding set of guides demonstrated the feasibility of the overall approach. The experience of establishing SharePoint based networks led to the choice of SharePoint for the centralized storage system for both the content of the publications and the related feedback.

After the Fukushima Daiichi accident and the request to analyse the findings from the accident and to review the standards to identify gaps or recommendations for strengthening the standards, the methodology envisaged as above was identified as an appropriate mechanism and was successfully used for the focussed and concomitant revision by amendment of several Safety Requirements (DS462).

The Commission on Safety Standards (CSS) had also requested the establishment of an electronic version of the standards to enhance user-friendliness and accessibility. Therefore, an electronic publication module was added to the design of the NSS-OUI platform with a functionality to access the publications through their title or number, including through a search in the publication titles and numbers and navigate within the Series with various advanced mechanisms.

Among the topical relationships that exist between different publications addressing the same topical area, an important one is the top-down relationship from the safety requirements to the safety guides or the recommendations to the nuclear security implementing guides and technical guides. However, these are not documented through explicit references from the top level to the bottom level but the reverse, due to the top-down development process. It was therefore decided to add a feature in the editing and publishing process to document in a top-down manner these explicit relationships. However, with a view to clearly differentiate what is part of the official publication reproduced in the NSS-OUI platform from

this additional information, a different format was adopted with a highlight in a different colour. Such explicit relationships also exist between publications at the same levels, for example from a requirement publication to another. This information may also not be available in printed or pdf publications when they are published one after another. In this case also these can be documented in the NSS-OUI platform.

Recognizing that the set of overarching requirements does constitute a set of main topical areas addressed in the standards, each described by a title and a bold shall statement summarizing the requirements, it was also decided to offer another navigation mechanism through this set of overarching requirements with a text search in the title and in the overarching 'shall' statement. A direct access to inside the requirements publication at the place of the selected overarching requirement is then provided, while opening the complete publication to also provide the whole context. This also makes that, for those of these requirements for which an explicit relationship is documented, the user may further navigate to other requirements or to the relevant guides.

This feature being with experience a very effective mechanism for the users, it was thus decided to expand it for the Nuclear Security Series by creating a similar concept of "overall recommendation" for the search capability, with the difference that these overall recommendations are a description of the content rather than a recommendation statement, i.e. it is not a part of the publication but a metadata.

This makes that, for the Safety Requirements publications, these overarching requirements titles and statement are at the same time part of the publication and metadata, whereas for the security recommendations, these are only metadata. The Editors thus offers the choice among these two possibilities so that the introduction of the titles and the shall or descriptive statement is made through the same editorial interface.

Two distinct browse mechanisms are then offered in the NSS-OUI platform for searching either the overarching requirements or the overall recommendations.

A key concept for the future use of the feedback as an input for the review and revision process is that, when producing the electronic version of the publications in the NSS-OUI platform, the set of metadata characterizing the topical content is exported together with the text in the html version. This makes that when using the feedback interface module, the feedback can then be stored in the centralized storage not only indicating what part of a publication was commented but also to what general topical area this related. This thus offers two different mechanisms to extract the feedback accumulated, either by publication or by topical areas to support both a publication specific revision process and a topical oriented revision approach.

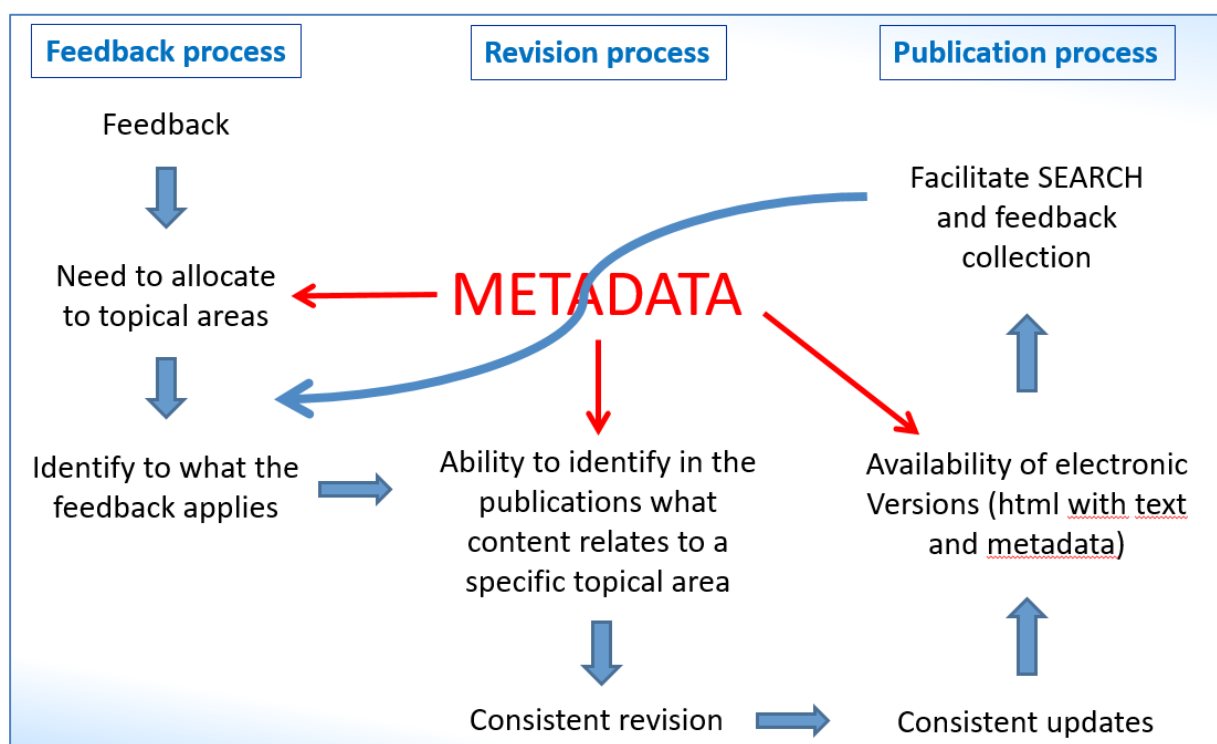
Three search modes are provided in addition to the 'navigation' or 'browse' modes:

1. An advanced topical and contextual search is available to use the topical areas ontology and, as appropriate, the contextual ontologies to find the part of the standards that correspond to the selected criteria. In this case, the search results will provide an access to all the relevant parts, including where no explicit relationship was established.
2. A publications relationship search provides as results, for a selected publication, all other publications that address at least one common topical area. It is also possible to identify those common topical areas and select among those to refine the search results. The advanced topical search is a key mechanism for a topical oriented revision process whereas the publications relationship search is a key mechanism for a publication specific revision process.
3. A full text search is also made available and allows search across the entire series.

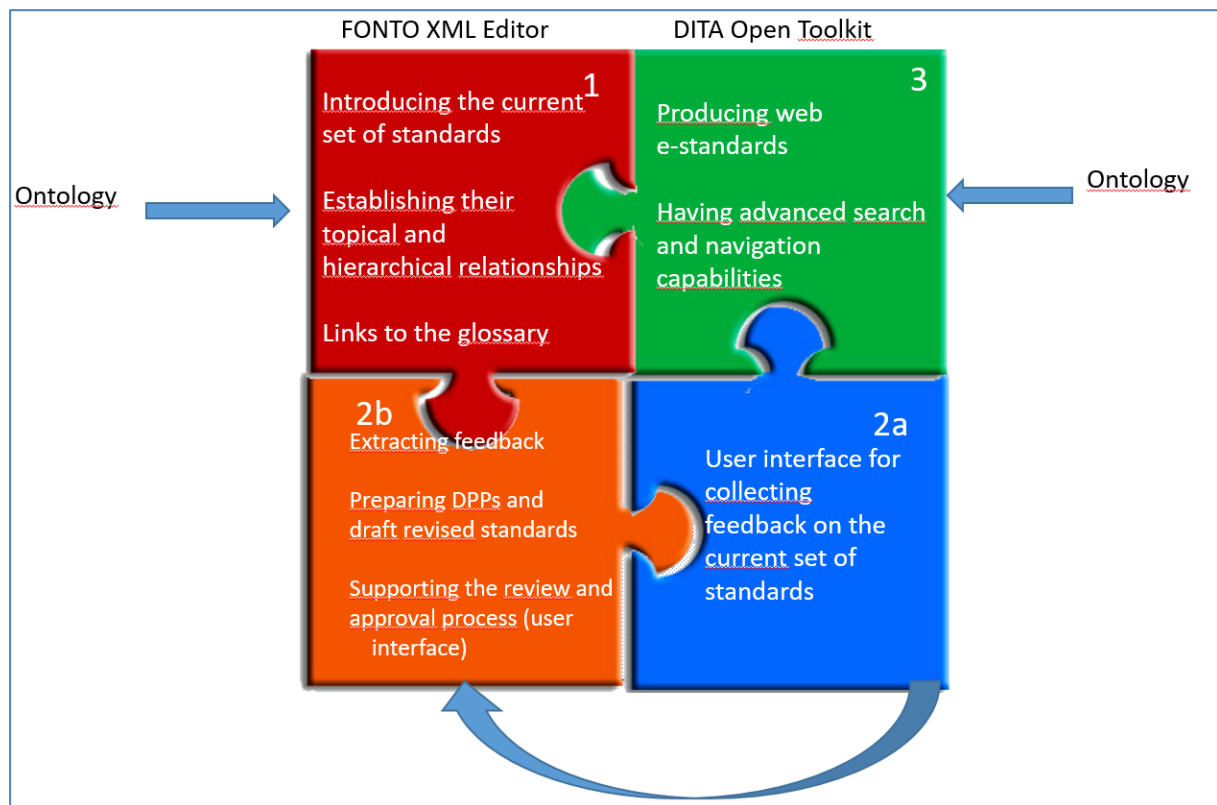
Additional basic features are being progressively integrated. This includes an interface to retrieve from a central management storage the references that are used in the publications, thus ensuring a harmonized and consistent use of references. This also includes a specific module for the defined terms in the glossaries with a possibility to provide a link to the definitions from within the electronic publication for defined terms. This module ensures clarity and controlled use of vocabulary.

Finally, the design for the NSS-OUI platform provides for the following characteristics:

- Multi-format output possibilities (html, pdf and then Word, e-pub)
- Multi-device access with responsive design: Desktop, Tablets, Smartphone
- Multi-browser compatible: most popular browsers are supported by the system



Overall conceptual representation



Overall infrastructure step by step development

B.2. General approach for the establishment of a topical ontology

For implementing a knowledge and content management system, it was necessary to adopt a modular approach starting by identifying what were the main topical areas addressed in the publications. A significant opportunity was independently provided by the adoption in 2008 of a new format for the Safety Requirements with the introduction of overarching requirements summarizing for each main area what the requirements were. Although this approach was developed independently from a content management system, it was de facto a mechanism to identifying what were the main topical areas for the entire series and, therefore, what the modular approach should be for the requirements.

Since the guides implement the requirements, a topical relationship is also de facto established in a top-down manner such that the subject covered in the guides can also be characterized by the same set of topical areas as covered in the requirements.

This recognition leads to the establishment of the ontology described in the section C hereafter.

Two key conceptual elements are of importance in this regard:

- The ontology is a concept-based ontology and not a term-based ontology, i.e. the individual topical elements are safety concepts (like defence in depth) and not safety related terms (like barriers); and
- The structure of the ontology to be used for content characterization and for search is not fundamentally different from the structure of the top-level publications and, therefore, there is only one logic in place.

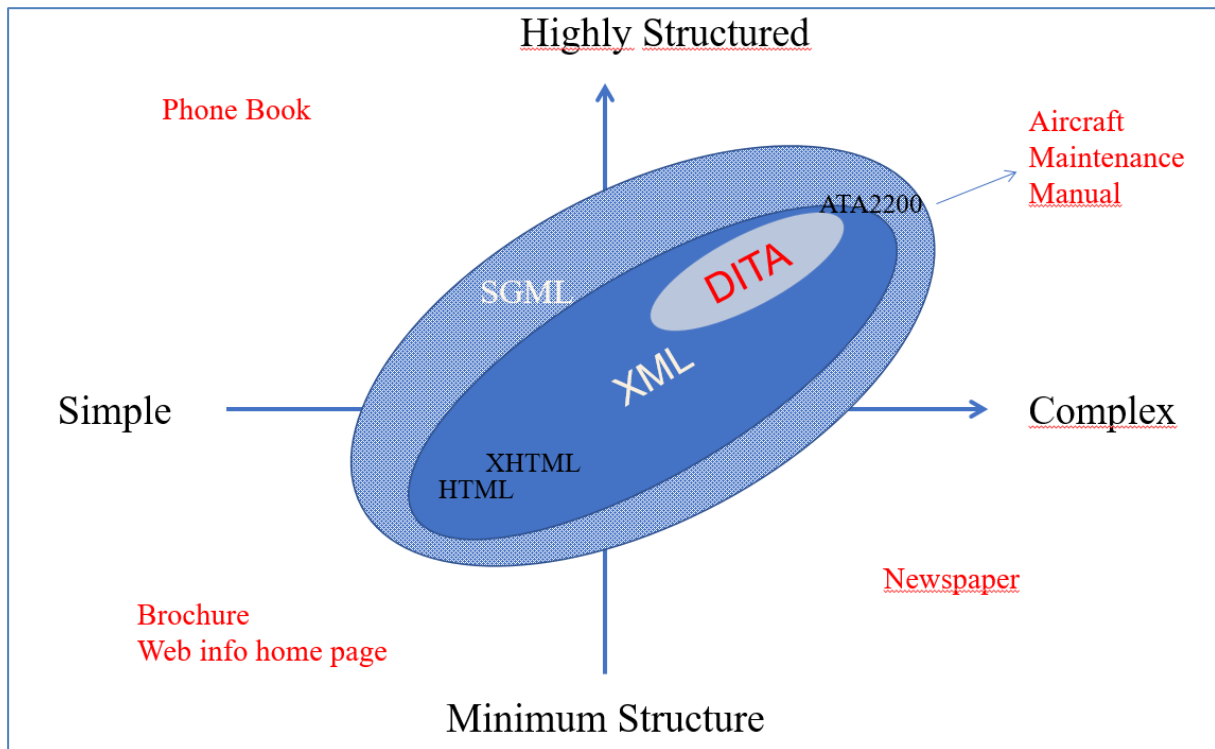
B.3. Content related language instead of format related language

In the past, the draft publications were prepared with a software in which the text was directly formatted. For the new NSS-OUI platform, the preference has been given to adopt an editor that doesn't directly precise the format for each element, but rather characterize each of these elements so that it can later be formatted when preparing an output. Thus, the editor is used to characterize the content rather than the format.

This option allows the preparation of different kinds of output, like html output for the web site, or pdf output, from the same unformatted text. For each type of output, a "stylesheet" is used that prepares automatically the output with the right format (following the IAEA style manual for publications) and thus in a harmonized manner.

For introducing content in the platform, the DITA XML language was selected. DITA (Darwin Information Typing Architecture) is a language complying with the OASIS² Standards that is content oriented (and not format oriented like MS Word) and includes features that are particularly relevant for the project.

² Organization for the Advancement of Structured Information Standards



Therefore, the editor used for the preparation of publications in the NSS-OUI platform includes features to characterize the structure and content of a publication (Sections, different heading levels, identification of paragraphs that will need to be numbered, footnotes, appendices, annexes, tables, figures, equations, bullet list, numbered list, reference items...). When publishing an output, the stylesheet then analyses these elements and produces the right format for each element.

In some cases, and particularly for being able to re-produce existing publications, some of the formatting can be forced.

B.4. Identification of the different components in a single publication

When applying in the editor the two main elements as described in the sections B.2. and B.3., i.e. the separation of those parts that belong to the same structural element of a publication (format) and of those parts whose content is related to the same topical area in the ontology (content), the practical approach is that the individual components are the individual structural parts. Each part within a specific heading level becomes de facto an individual component. Individual tables and figures may also be established as individual elements, particularly if it is expected that the same table or the same figure might be re-used in another publication.

B.5. General tagging approach

Content and context characterization, also called “tagging” in this document, is a key activity when introducing publications in the NSS-OUI platform.

A topical tagging aims at characterizing the content by identifying which of the topical areas from the ontology are relevant for a publication, as a whole, or for a part of that publication. Similarly, a contextual tagging aims at characterizing the context: Target audience, type of facilities and activity, lifetime.

This is further developed in the sections C.1. and C.2. hereafter.

It is important that one approach be adopted in a harmonized manner for the publications and therefore, the final tagging is made or validated at the Department level for all publications.

Topical tagging at the publication (called “collection” in the NSS-OUI platform to indicate that an e-publication is a collection of “chunks” being the successive parts of the publication) level depends of the content of the whole publication: if a publication relates to a limited number of topics, it is better to tag at the collection level the publication with these topics and not to tag individual chunks. But when a publication addresses in different sections different topical areas, like a facility specific publication, then it is better to tag each individual chunk and not to tag the collection (to avoid the repetition in a search result).

Two types of situations might happen because of this approach. In one case, one individual component might indeed address two or more different topical areas as listed in the ontology. They will not be separated through this method, since this is considered as a better option because these topical areas are probably highly interrelated if it was decided to cover them all under the same heading in a publication. In this first case, the content of that individual component will thus be characterized with the two or more topical areas, and the search on any of these topical areas will provide as a result the complete component. In another case, we may indeed have the opposite, i.e. a succession of components with each an individual headings and sub-headings that in total address the same topical area. In that case, they will not be separated but the set of topical areas will be allocated to the first individual component. The search on such a topical area will thus open the document starting with that individual component.

At this stage of experience, it is suggested to adopt a conservative tagging method, i.e. not necessarily using the tags that obviously are addressed in a specific publication or part of an existing publication, but also tagging with the topical areas which could possibly be addressed at some point in the future in this publication. This makes that the search by topical area would retrieve this publication as a candidate for a future update on a specific topical area.

It is also important to note that the tagging approach is different from the search approach. For example, when one part of a publication covers a level 2 concept in the ontology, that level 2 concept and all subsequent level 3 sub-concepts should be selected when tagging. Searching then one any of these level 3 topical areas would provide as part of the results what was tagged with this level 3, including what covers the broader area at level 2. This would not be the case if only the tag at level 2 was used.

For the contextual tagging on the target audience, the criteria for tagging should not be who is interested in the content, but rather who has a responsibility in implementing the content.

Contextual tagging is necessary at the collection level when the topical tagging is also restricted to the collection level.

B.6. Top-down development and implications for the cross-references

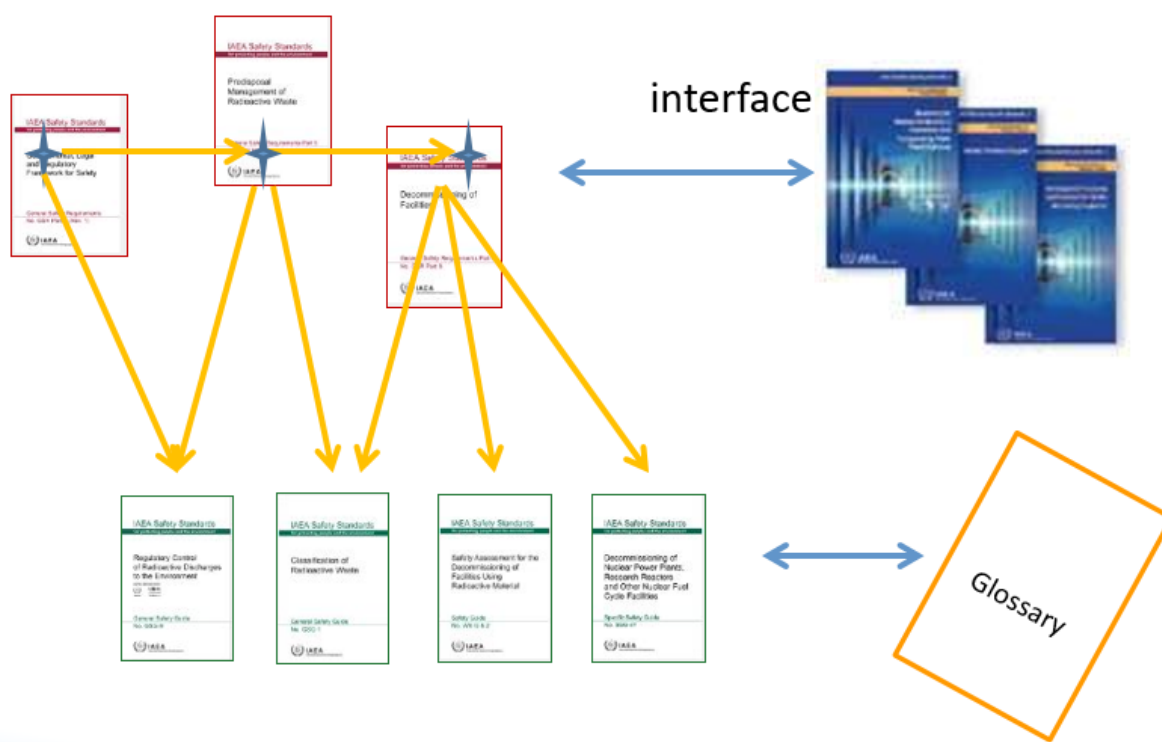
For both the IAEA Safety Standards Series and the Nuclear Security Series, a top-down development process is adopted. As a result, the Requirements or the Recommendations are generally developed before the associated guides. Therefore, unless for limited situations, the requirements and the recommendations don't include any information for the users on how to identify the relevant safety guides or guidance. Similarly, for cross-references at the same level, the older requirements or recommendations cannot refer to newer ones.

For this reason, a system of "Tip Notes", displayed in the html output e-publications is available to document the explicit relationships that may be useful for the users, in addition to those mentioned in the list of references. With a view to clearly differentiate however what is part of the official publication reproduced in the NSS-OUI platform from this additional information, a different format was adopted with a highlight in a different colour.

Similarly, all publications include a set of references. However, there are two general categories of references. In some cases, these were used as a "source" for the drafting of the publication and therefore remain the only source. In many other situations however, a reference is inserted to provide the users with other publications that we recommend considering, i.e. a "resource". In the case of a resource, it is useful to use also a "Tip Note" to update the list of references with the one that have been superseded in the meantime. Tip notes in a different colour are sometimes used to provide information about additional "resources", such as other IAEA publication series or multimedia resources.

The full text search functionality makes that these tip notes become searchable and therefore when a publication is superseded, it is possible to identify where, in other publications, it is referred to it, either in the list of references or in the set of tip notes to insert the new information on the new publications. When a new publication is issued, it is also possible to find which other already issued publications should refer to the new one, by using the relationship search. Practically, after the new publication is tagged, a relationship search for that new publication will identify all other that have at least one common tag. From there it is therefore possible to select those for which it is interesting to make an explicit relationship, i.e. insert in already published e-versions a tip note to refer to the new publication.

Content and relationship management through metadata and through **explicit** relationship information notes



B.7. Explicit versus implicit relationships

The relationships documented as described above in the section B.6. and, more specifically, in section D become explicit relationships such that the users of the NSS-OUI platform will find these by using the ‘navigation’ mode. The purpose is to establish those relationships that are meant important to help the users implementing the requirements or recommendations, either by referring to other important requirements or recommendations to be considered or by identifying which specific guidance is available for implementing the requirements or recommendations.

Using the tagging as described in sections B.5. and C will also establish another, complementary, type of relationship, called implicit, since these can be accessed through the search modes but not necessarily through the navigation. Of course, all explicit relationships will also result in the corresponding tagging so that all explicit relationships can also be found through the search modes.

The purpose of these implicit relationships through tagging is to identify, for a specific topical area, where in the publications it is addressed, with more or less details, and thus be able to use the content management system to update these parts as necessary in the future to maintain the consistency across the publications.

B.8. Versioning and stability of html addresses

Any publication is identified with a specific number. The Safety Standards are identified, in each category, as SF-1 for the Safety Fundamentals, GSR Part x for the General Safety Requirements, SSR-y for the Specific Safety Requirements, GSG-x for the General Safety Guides, and SSG-y for the Specific Safety Guides. When one of these publications is revised, even by amendments, i.e. a focused revision of one particular part of the publication, this revision is identified by adding a revision number, for example GSR Part 1 (Rev. 1). For the Nuclear Security Series, a NSS number is allocated, for example NSS No. 20. For the recent NSS guidance publication, a letter G (Implementing Guide) or T (Technical Guidance) is added to identify the category. When a publication is revised, a revision number is also added.

In the NSS-OUI platform, the corresponding e-publications are also identified by the same number. If a revision of a publication is made, a new e-publication will be issued that will also include the revision numbering.

There is, however, an additional characteristic, mentioned in the NSS-OUI Browse by publications mode, which is the date of the e-version. When for an existing version of a e-publication a revision is made, not in the text of the publication, but in the relationship notes or the metadata, a new electronic version is issued with a new issuing date. The successive versions can be accessed through a drop-down list at the very end of the html version, but the actual text of these different versions is the same. Only the additional information inserted in tip notes or inserted as metadata can vary from one version to another, so the date of an e-version is different from the official year of publication which is also preserved without changes.

In these cases, the html addresses remain unchanged so that, should one user establish a “favourite” or “bookmark” to it, the link would not be broken. Such links to the relevant requirements are, for example, inserted in the template for the national reports for the Convention on Nuclear Safety (CNS). Even if we update the e-version of these, the link would still be valid and point to the latest available version of that publication or part of publication.

Each e-publications in NSS-OUI has a specific html address, for example m_8fd5e365-0c72-4e28-9ec7-3a2452df2b43 for GSR Part 1 (Rev. 1). Clicking on this link would automatically point to the latest version, i.e. the version 28 available on 1 February.

But each individual component that is separated and tagged as explained in B4 and B5 also has its own address starting with the same collection address m_8fd5e365-0c72-4e28-9ec7-3a2452df2b43 and continuing with the “chunk” address, like c_14334ca3-b9b2-469d-96ad-e9b34d614cc8 for the part related to the requirement 36 of GSR Part 1 (Rev. 1)

Thanks to unique address of each chunk in every publication, any search gives a suite of results being parts of a publication are directly accessible when such a result is selected by the users. In this case also, such a link would lead to the latest available version of that chunk.

For example, a search on the topic “monitoring programme for a disposal facility” would provide among the several results the part of SSG-29 for near surface disposal related to that topic with a direct link to it, through the address of SSG-29 (m_78cc7dd6-cbd2-49cc-b88f-090262a2cf6a) complemented by the address of that part (c_96ad73e8-866f-41ee-a326-a8de2b56beac).

The stability of these addresses makes that, for the special case of SSR-6 that includes direct hyperlinks to the corresponding parts of the safety guide SSG-26, a revision by amendments of both SSR-6 and SSG-26 will maintain the validity of these hyperlinks as well as hyperlinks established within SSG-26 from one part to another.

However, in cases when one guide is being superseded by another guide, the new guide is established as a new e-publication with a new address. The access to the previous version is nevertheless kept and the html text of the superseded guide is removed so that the previous version is not any more searchable using the advanced search criteria or relationship search mode. Only a tip note remains indicating which other new guide provides the desired information. The previous html version from the drop-down list at the very end of the html, can, however, display the content of the superseded standard. The link to the IAEA publications’ page is also kept.

B.9. Concepts and tools for the consistent and concomitant revision of a set of publications

Among the objectives of the platform, the three following relate to the consistent revision of the publications:

- To ensure that the review and revision of publications in the IAEA Safety Standards Series and in the Nuclear Security Series are informed by a systematic process of collection and analysis of feedback.
- To ensure that any revision of publications or part of publications is justified by the above-mentioned feedback process, therefore also ensuring stability of the parts of the standards and guidelines that remain valid.
- To maintain technical consistency between publications by managing them as a series.

The revision process will vary, but it is important to have the flexibility to offer several approaches and options, ranging from a document by document revision process to a topic-oriented revision process. For a document by document revision process, a plan will need to be established to identify which other documents will need to be revised at an appropriate time in order to maintain the consistency among the publications. In a topic-oriented revision, consistency is better achieved through the concomitant revision of the identified set of publications.

To address the first two objectives as mentioned above, a key feature is that the set of metadata characterizing the topical content is exported together with the text in the html version such that the feedback is stored in the centralized storage not only indicating what part of a publication was commented but also to what general topical area this related. This thus offers two different mechanisms to extract the feedback accumulated, either by publication or by topical areas to support both a publication specific revision process and a topic-oriented revision approach.

A tool is made available to generate table of comments and proposals with two different approaches. One is the generation of a table for the comments and proposals accumulated over a certain time for a specified publication. The second one is to generate a similar table for the comments and proposals accumulated over a certain time on a specific topical area, and across the set of publications or parts of these publications addressing this topical area.

These tables can be generated at any time.

When the feedback accumulated either by publication or by topical area suggests that there is a justification to propose a revision, the advanced topical and contextual search is then available to find the parts of the publications that correspond to the topical area. The publications relationship search will otherwise provide, for the selected publication, all other publications that address at least one common topical area. The advanced topical search is a key mechanism for a topical oriented revision process whereas the publications relationship search is a key mechanism for a publication-specific revision process.

C. ONTOLOGY FOR KNOWLEDGE AND CONTENT MANAGEMENT

In this part, we use the term “content” to cover what the current set of publications covers. The purpose of the concept-based ontology is to be able to characterize the detailed content of the publications by a set of topical areas describing the content. The same set of topical areas is also used to characterize any new information, particularly any feedback collected on the current publications to link this feedback with the current content. This set of topical areas, is the basis for providing an advanced search capability to extract the content and information by topical areas and identify the different parts of the Series of publications covering the same topical area, as well as to organize their consistent revision where appropriate.

This set of topical areas is then established as a topical ontology that also covers the relationship between the different topical areas (hierarchical or conceptual). Context related elements, such as to which target audience the content is addressed, for what facilities or activities it applies or at what time in the lifetime of a facility this content is relevant are also considered. This results in three other ontologies that can also be used to characterize the context and consequently can also serve as searching/filtering criteria.

New knowledge and new information, including feedback on the current content is categorized using the topical ontology for the content and is addressed in section F.

Information on the relationship between the publications is not handled through the ontology and is addressed in section E.

C.1. Topical ontology

For an effective content management system, the concept is to split the content of any publication into separate parts that cover different topical areas. In order to be optimal, the size of these parts needs also to be reasonable compared to the size of each publication. A too small size would be too detailed and not user friendly, because the result of any search would be a long list of individual parts. A too large size would not bring sufficient benefit as it would essentially result in the list of the relevant existing publications at their title level.

For the Safety Standards Series, a concept of overarching requirements was established in 2008 (see annex II of SPESS A on the roadmap for the long-term structure of safety standards). This can be used to identify what are the main topical areas covered by the standards. Using the set of overarching requirements as an input to characterize the content of the requirements also makes that the structure of the ontology is not fundamentally different from the structure of the actual content, thus ensuring that the logic for the search mode is consistent with the overall structure logic. The number of overarching requirements also makes that this can result in a manageable size for the ontology. Such an ontology is concept-based and not simply term-based (like a taxonomy based on the terms defined in the glossary) and is a more modern approach to the establishment of a knowledge and content management system.

The ontology was therefore developed by using, at the first level, the broad areas covered by each Safety Requirements complemented by a second level identifying either directly an overarching requirement area or a concept covering several overarching requirements areas, which is then sub-divided at the third level by this set of individual overarching requirements.

For example, for GSR Part 1, this results in the following topics, for the national policy and strategy element, with a three-level taxonomy, the third one being at the overarching requirement level (here below is an extract of the set of areas for GSR Part 1):

Governmental, Legal and Regulatory Infrastructure for Safety	National policy and strategy	General
Governmental, Legal and Regulatory Infrastructure for Safety	National policy and strategy	National policy and strategy for decommissioning
Governmental, Legal and Regulatory Infrastructure for Safety	National policy and strategy	National policy and strategy for waste management
Governmental, Legal and Regulatory Infrastructure for Safety	National policy and strategy	Governmental responsibility for the disposal of radioactive waste
Governmental, Legal and Regulatory Infrastructure for Safety	National policy and strategy	International obligations and arrangements for international cooperation

Another example, for GSR Part 5, is a two-level ontology where the second level already corresponds to the set of overarching requirements (here below is an extract of the set of areas for GSR Part 5):

Safety of the Predisposal Management of Radioactive Waste	Radioactive waste generation and control	
Safety of the Predisposal Management of Radioactive Waste	Characterization and classification of radioactive waste	
Safety of the Predisposal Management of Radioactive Waste	Processing of radioactive waste	
Safety of the Predisposal Management of Radioactive Waste	Storage of radioactive waste	
Safety of the Predisposal Management of Radioactive Waste	Radioactive waste acceptance criteria	

The next characteristic of this set of topical areas is that some of the areas are indeed addressed in different publications and appear therefore in different branches of the ontology. For example:

Safety Assessment	Periodic safety review	
Site Evaluation for safety	Monitoring and periodic re-evaluation	
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	Operation	Periodic safety review

Another example can be found in GSR Part 1 and GSR Part 6, where similar topical areas are addressed in different branches:

Governmental, Legal and Regulatory Infrastructure for Safety	National policy and strategy	National policy and strategy for decommissioning
--	------------------------------	--

In this case, the national policy and strategy for decommissioning is a subset of a larger area being “national policy and strategy”.

Safety of the Decommissioning	National policy and strategy for decommissioning	
-------------------------------	--	--

In this case, decommissioning is the larger area and the national policy and strategy is a subset.

Both do cover the same topic, but in different branches. The ontology resulting from a direct list of overarching requirements is therefore processed to firstly avoid that this would result in two different topical areas and secondly makes that the search on one area would provide both results. These two elements of the ontology are therefore declared as equivalent, such that searching for any of these two items would provide as a result both contents.

In some cases, this can be more complex, i.e. several areas can be considered as equivalent, but the search would not be optimum by providing all results, independently of the context. For example, when searching for “management system” in the context of GSR Part 2, the search results would include all other instances in other safety requirements on management system, but when searching for “management system” in the context of the disposal of radioactive waste, it is not useful to include all these instances, but a limited number of relevant elements such as the one from the requirements in GSR Part 2, because it provided the “lead” requirements and the one from SSR-5 because it is contextually related. This means that the establishment of equivalence in the ontology is made with a directional feature.

Moreover, with a view to facilitating the use of the ontology as search criteria, in some cases, the structure of the safety requirements was simplified to avoid too many levels and remain within a maximum of two to three hierarchical levels. Likewise, when the title of an overarching requirement was too long or not sufficiently explicit to describe the subject, this was further refined in the ontology.

When establishing the set of topical areas, a specific situation was encountered with a few Safety Requirements where there was no overarching requirement. This was the case for SSR-6 and NS-R-3. In these cases, the structure of the publication and a systematic content analysis paragraph by paragraph was used to identify the relevant set of topical areas. This approach was also used for the Nuclear Security Series.

Finally, a screening of the subjects covered by the Safety Guides was performed to verify that all areas that they cover were already identified as a result of the analysis of the requirements. In a limited number of instances, this resulted in complementing the set of topical areas in the ontology, for example the topic “criticality safety” was added to the list.

Throughout the preparation and finalization of this topical ontology, an excel sheet was maintained to keep the information on which overarching requirement(s) were at the origin of introducing each topical area, thus enabling the use of that excel sheet to tag every single requirement and the associated text with the final set of topical areas. The excel sheet also documents the relationships between topical areas described here above (see picture hereafter including the mapping of the Safety Requirements. The complete ontology is available at the end of this document).

For the safety guides, we have two main situations. Some safety guides are topic specific and relate to a very specific topical area covered by one or a few requirements. In this case, the topical areas covering

these requirements can also be used to characterize the content of the guide, as a whole. Other safety guides are facility or activity specific and cover many topical areas. In these cases, each individual part can be characterized by the same topical area as for the overarching requirements they implement. At this stage, it is not planned to develop a subsequent level in the ontology to separate topical areas at a level below the level of the requirements. Based on the experience in using the platform, we may nevertheless identify some additional specific areas for which there would be a benefit in further refining of the ontology. The interface for the system administrator allows for this maintenance. In such cases, the new concept would be available for the tagging of future publications, but it is not expected that retro-active tagging of existing publications would be necessary.

When inserting new guides into the NSS-OUI platform, it may also happen that the topical areas they cover are not well reflected at one of the first three levels in the current ontology. If this is the case, it is possible to add new items in the ontology. The identification of an important new topic to be inserted may probably lead at some point in the future to the establishment of a new specific overarching requirement. In such situations, the question of retro-active tagging of existing publications is more pertinent and the use of the full text search would help in identifying where the new topical area is already addressed so that these parts could be re-tagged with this new topical area.

The current version of the ontology can be viewed and used for advanced search in the NSS-OUI platform and all levels can be expanded by pressing the 'Expand all' button. 'CTRL + F' (or the equivalent search function available for tablets and smart phones) can be used for finding a concept of interest in the ontology.

C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
topical area level 1	topical area level 2	topical area level 3		343 Topical number	- including 58 for transition	- other related	- GSR Part 1	- GSR Part 2	- GSR Part 3	- GSR Part 4	- GSR Part 5	- GSR Part 6	- GSR Part 7	- SSR-1	- SSR-2/1	- SSR-2/2	- SSR-3	- SSR-4	- SSR-5	- SSR-6
Preparedness and response for a nuclear or radiological accident	Quality management programme			134									26							G
Preparedness and response for a nuclear or radiological accident	Coordination of emergency preparedness and response			135									22							G
Preparedness and response for a nuclear or radiological accident	Organization and staffing			136									21							G
Safety of the Decommissioning	Emergency preparedness and response			137 to 172 and 191								13	21							
Preparedness and response for a nuclear or radiological accident	Establishing an emergency management system / legal and regulatory framework / assignment of responsibilities	Responsibilities of operating organizations		137 none									2							
Preparedness and response for a nuclear or radiological accident	Plans and procedures			137 none								13	23							G
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	Operation	Emergency preparedness		137 to 172 and 191												18		81 4.20-4.23		
Preparedness and response for a nuclear or radiological accident	Logistical support and facilities			138									24							G
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	On-site emergency response facilities			138											67		32, 55			
Preparedness and response for a nuclear or radiological accident	Identifying and notifying a nuclear or radiological emergency and activating an emergency response			139									7							G
Preparedness and response for a nuclear or radiological accident	Taking mitigatory actions (on-site and interface with off-site)			140									8							G
Preparedness and response for a nuclear or radiological accident	Taking urgent/early protective actions and other response actions (both on-site and off-site and interface)			140									9, 14							G
Preparedness and response for a nuclear or radiological accident	Instructing, warning and informing the public affected or potentially affected			142									10							G
Preparedness and response for a nuclear or radiological accident	General public communications			143									13							G
Radiation Protection and safety of radiation sources	Emergency situations	Protecting emergency workers and helpers		144					45				9, appendix I							G
Preparedness and response for a nuclear or radiological accident	Protecting emergency workers and helpers			144					45				11, appendix I							G
Preparedness and response for a nuclear or radiological accident	Managing the medical response			145									12							G
Preparedness and response for a nuclear or radiological accident	Managing radioactive waste in a nuclear or radiological emergency			146									15							G
Preparedness and response for a nuclear or radiological accident	Mitigating non-radiological consequences			147									16							G
Preparedness and response for a nuclear or radiological accident	Requesting, providing and receiving international assistance			148									17							G
Radiation Protection and safety of radiation sources	Emergency situations	Transition to an existing exposure situation		149					46				16							

C.2. Contextual ontology

In addition to the topical ontology, three more simple ontologies were developed to characterize the context: Target audience, type of facilities and activity, lifetime. They help to limit (filter) search results based on the context of their application.

For example, for the type of facilities and activities the following ontology is introduced, with the two instances on “spent fuel storage” being declared as equivalent:

Facilities and Activities	Nuclear Power Plants	
	Research Reactors	
	Mining	
	Fuel Cycle Facilities	Conversion
		Enrichment
		U Fuel Fabrication
		MOX Fuel Fabrication
		Reprocessing
		Storage of spent fuel
		Fuel Cycle R&D
	Predisposal Waste Management Facilities	High level waste
		Low and Intermediate level waste
		Storage of spent fuel
	Waste Disposal Facilities	
	Radiation Facilities	Gamma, Electron and X ray
		X ray generators and sources for non medical imaging
		Industrial Radiography
		Well Logging
		Nuclear gauges
		Radioisotope production
		Research and education
		Others
	Consumer products	
	Major Public Events	

Finally, when introducing the text of the publications in the platform, a few other pertinent elements are recorded with a view to enabling their use as search or selection criteria. This includes, for example, the category of the publication (General Safety Requirements, Specific Safety Requirements, Nuclear Security Recommendations, Implementing Guides, etc.), the year of publication and the version of the relevant glossary.

C.3. Maintainability

Every single topic or sub-topic has a concept-based name or label, like “national policy and strategy for decommissioning” and a unique ID number, as displayed here below from the administrator interface to manage the ontologies.

SEARCH

TAXONOMY TERM STORE

English

Managed Metadata Service Application

Esp

Facilities And Activities

Lifetime

Safety and Security Topical Areas

Governmental, Legal and Regulatory Inf

National policy and strategy

General

National policy and strategy for d

National policy and strategy for w

Governmental responsibility for th

International obligations and arran

Legal and regulatory framework

Regulatory Body

Regulatory processes

Leadership and Management for Safety

Radiation Protection and safety of radiat

Safety Assessment

Safety of the Predisposal Management c

Safety of the Decommissioning

Preparedness and response for a nuclea

GENERAL

CUSTOM PROPERTIES

National policy and strategy for decommissioning

Available for Tagging

Select whether this term is available to be used by end users for tagging. When unselected this term will be visible but not enabled in tagging tools.

☒

Language

Select a language of the labels for the term you would like to edit.

English

Description

Descriptions will help users know when to use this term, and to disambiguate amongst similar terms.

Default Label

Enter one label as the default for this language.

National policy and strategy for decommissioning

Other Labels

Enter synonyms and abbreviations for this term. (You can enter a word or phrase per line.)

add new label

Member Of

Term Set Name	Term Set Description	Parent Term	Source Term	Owner	Pin Source
Safety and Security Topical Areas		National policy and strategy	☒	splab\mtitadmin	

Unique Identifier

0dafb2e7-121e-4c23-81f7-6c2ae26edbc9

Save

Cancel

This makes that, if needed it is possible to rename the topical areas without affecting the previous allocation, that was made with the previous name, of that topical area to the publications introduced into the platform and make that a search with the new name would still display the part of the publications that were characterized with the previous name.

This unique ID is also used to establish directional relationships between topical areas. For example, the unique ID from the picture that corresponds to the topical area “Governmental, Legal and Regulatory Framework / National policy and strategy / National policy and strategy for decommissioning” (0dafb2e7-121e-4c23-81f7-6c2ae26edbc9) is inserted in the custom properties, as an equivalent topic in the ontology for the topic “Safety of Decommissioning / National policy and strategy for decommissioning”, as shown in the picture here below.

The screenshot displays a web interface for managing a taxonomy. On the left, a 'TAXONOMY TERM STORE' sidebar shows a hierarchical list of terms. The term 'National policy and strategy for decommissioning' is selected and highlighted with a blue circle. The main panel on the right is titled 'CUSTOM PROPERTIES' and contains two sections: 'Shared Properties' and 'Local Properties'. The 'Shared Properties' section has a table with two columns: 'Shared Property Name' and 'Value'. A row is present with 'Related Terms' as the name and a long alphanumeric string as the value, which is also circled in blue. Below this table is an 'Add' button. The 'Local Properties' section is currently empty, with an 'Add' button at the bottom. At the bottom right of the main panel are 'Save' and 'Cancel' buttons.

In the custom properties described in the picture above, it is possible to mention several other relationships so that the relationship becomes directional. Searching this topical area “x” would provide as a result all other content characterized by the topical areas “y” “z”, described as equivalent for that topic, but searching for one of these other topical areas “y” or “z” would not necessarily result in providing the content characterized by “x”.

The possibility also exists to merge some topical areas, if it is felt that this was too detailed, or vice-versa, to split a topical area into two topical areas at the same level, or even to establish, for an existing topical area, a subset of more detailed characterization. In this case, and if so decided, we may propagate the change retrospectively by searching the parts of the publications that were characterized in the previous manner and re-categorize these with the new topical area description.

The set of metadata can also evolve to incorporate feedback and update the ontologies as necessary with a mechanism that maintains the validity of existing tagging, even when the set of metadata is amended. Therefore, it is recommended to rename or add tags where appropriate, but to avoid deleting existing tags from the ontology.

D. RELATIONSHIP DOCUMENTATION AND MAINTENANCE

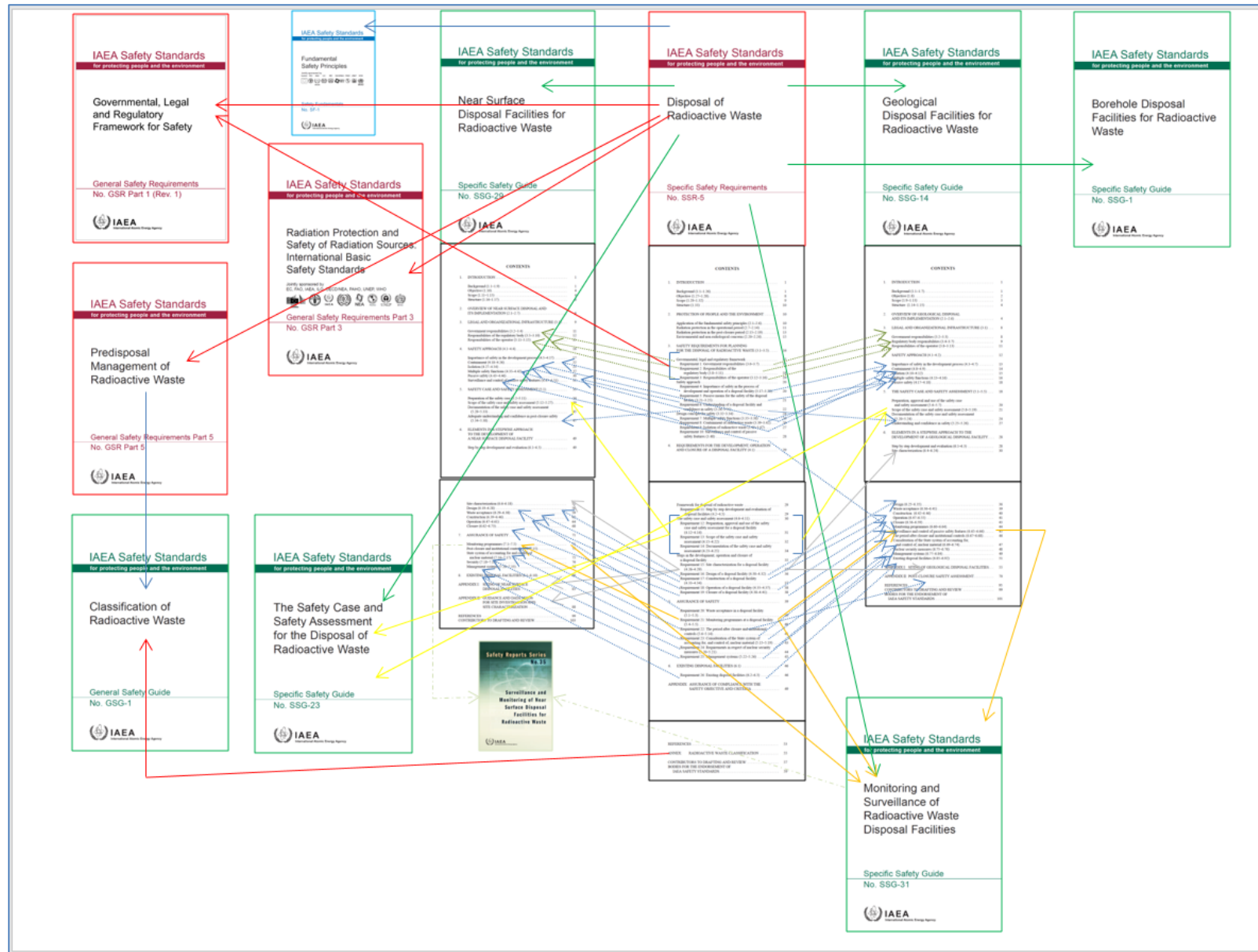
D.1. Introducing explicit relationships between publications

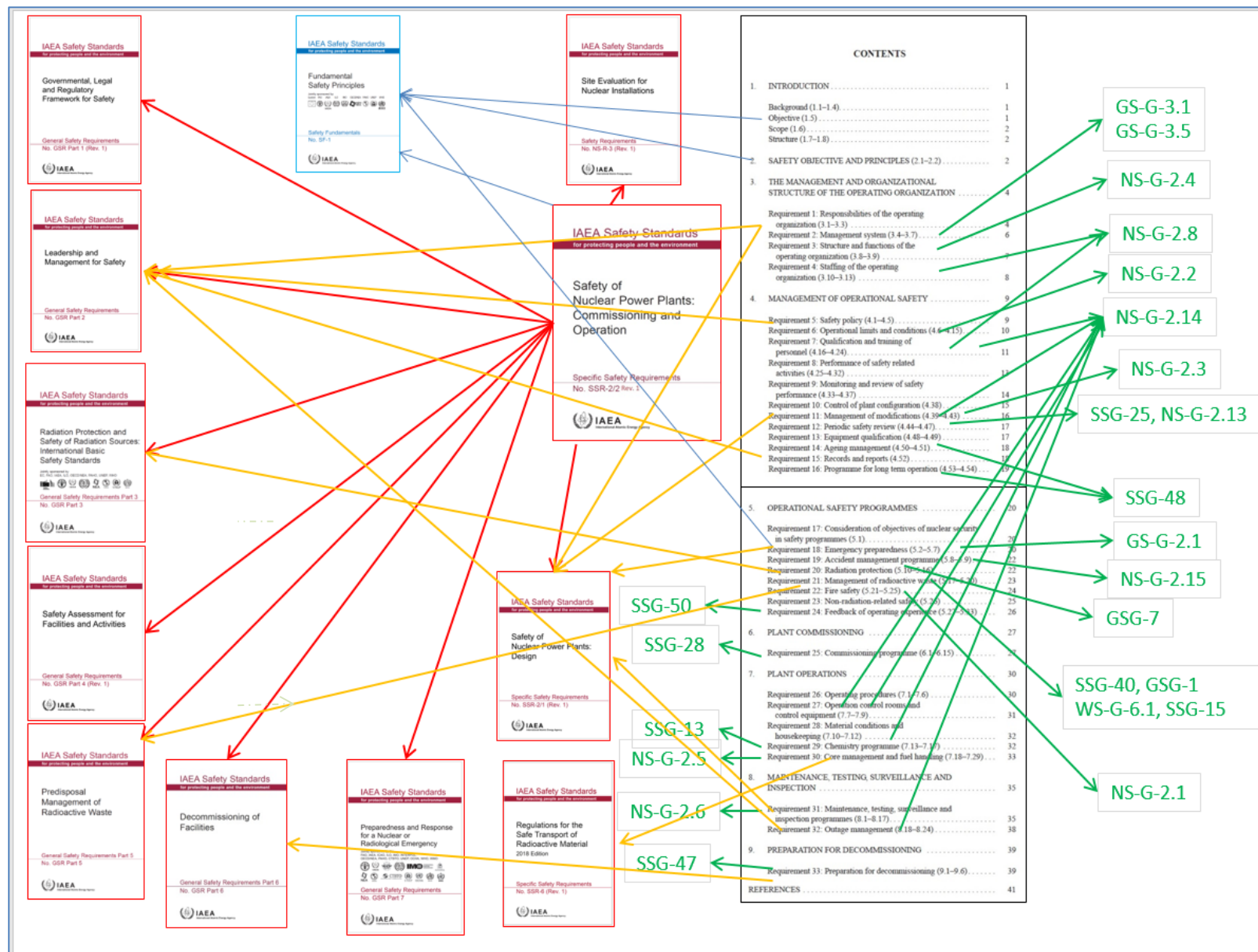
The figures hereafter provide two examples of the different types of relationships that can be documented in the platform for one publication (SSR-5 and SSR-2/2):

- At the publication level, from Safety Requirements to the Safety Fundamentals (for example from SSR-5 to SF-1)
- At the publication level, from Safety Requirements to other Safety Requirements (for example from SSR-5 to GSR Part 5)
- At the publication level, from the Safety Requirements to individual Safety Guides supporting that Safety Requirements (for example from SSR-5 to SSG-14 and SSG-29)
- At the individual part of a Safety Requirement to an individual part of another Safety Requirement (for example from the Annex of SSR-5 to the overarching requirement 9 of GSR Part 5) or to a Safety Guide (for example from that same annex of SSR-5 to the Safety Guide GSG-1)
- At the individual overarching requirement level, to the relevant Safety Guides supporting that overarching requirement (for example from SSR-5 requirement 21 to SSG-31)
- At the individual overarching requirement level, to the relevant parts or paragraphs of Safety Guides supporting that overarching requirement (for example for each SSR-5 overarching requirement to the corresponding parts in the two facility specific guides SSG-14 and SSG-29)
- At an individual part of a Safety Guide to another Safety Guide (for example for the parts of the safety guides SSG-14 and SSG-29 on monitoring to the complete Safety Guide SSG-31)
- At any level to any other publication (for example a hyperlink to the Safety Report Series No. 35)

The IT platform can document all these relationships in an *explicit* manner by using tip notes or related links. Additional *implicit* relationships will have been de facto documented by the allocation of topical areas from the concept-based ontology, making that the search would identify these relationships in addition to the explicit ones documented and immediately visible by the ‘browse’ mode of the platform.

The list of references is introduced as in the original published version but when references are subsequently superseded, it is also possible to use a tip note to indicate the new relevant publications.





D.2. Maintaining explicit relationship, including when issuing a new publication or a revised publication

When a revised publication is issued, it is possible using the “full text search” capability to identify all existing publications or parts of publications in which a relationship was inserted to the superseded version of the revised publication. For example, a search within quote of “NS-G-1.1” will result in listing all references previously made to that safety guide, whether as part of the list of references or as an “relationship note”. It is then possible to update all the relationship notes and the reference list in order to indicate that this is now superseded, in the example given, by SSG-39. The superseded publication will remain in the list of publications in ‘browse’ mode as a heading but the entire content will be removed and the superseded publication will be marked as such by a new tip note with a reference to the new relevant document (e.g. NS-G-1.1 will be marked as: “this Safety Guide is now superseded by SSG-39”).

If the relationship was in an information note, it just needs to be updated in that same information note. If the relationship was established by an item in the list of references, then a new information note, or an addition to an existing one for the references, needs to be inserted to mention the newly available publication.

When a new publication is issued that doesn’t supersede a previous one it is necessary to identify where in the set of existing publications it is useful to insert an explicit relationship note. Two complementary methods can be used:

- 1- The new publication does include bottom-up or horizontal relationships in which case it is possible to insert, as appropriate, the corresponding information note in the publications to which a bottom-up or horizontal relationship is mentioned. The criteria to decide whether this is appropriate is when the new publication does provide complementary guidance to the other mentioned publication.
- 2- After tagging the new publication with the topical ontology, the “relationship search” capability will identify all implicit relationships, i.e. all other publications or parts of publications that share at least one common topical area. It is then possible to analyse the result of this relationship search and, using the same criteria, identify those publications or part of publications for which it is appropriate to insert an information note for an explicit relationship to the new publication issued.

With a view to maintaining this capability for publications for which a revision is initiated, the current publication will remain available in the set of publications so that it may be updated as necessary with new relationship notes. The draft for the revision will be prepared starting by a “clone” of the available publication, i.e. the exact same dita file except that it will be given a different number, for example a DS number or a NST number. Only at the end of the revision process, the new revised publication will be issued and the previous one marked as superseded.

E. INTRODUCTION OF THE GLOSSARY AND IDENTIFICATION OF DEFINED TERMS

E.1. Integration of the Glossary in the NSS-OUI platform

As the rigorous use of controlled vocabulary is an important characteristic of Safety Standards, the NSS-OUI platform contains a feature to display definitions and associated notes for terms defined in the recent revision of the IAEA Safety Glossary.

Terms from the IAEA Safety Glossary are stored in a format of SKOS³ with the help of semantic technology.⁴ Terms, their definitions and information notes are managed through the back-end server by a limited number of IAEA staff members of the Safety Standards and Security Guidance Development Section (SSDS). Any change in the glossary resulting from the issuance of a new publication will then also be recorded in the development server with a new entry in order to ensure a strict version control. The newly valid definition will thus be “published” in an updated version of the Glossary production server with the intent that it will always display the latest valid definition of a term. The Glossary front end on the production server is publicly available and accessible also as a resource. See section E.2.

A special interface between the NSS-OUI platform and the semantic KOS client has been programmed to enable a rigorous tagging of published Safety Standards (HTML versions) with the relevant terms and definitions used for a particular standard (that is of particular importance for terms where multiple definitions are established by the IAEA).

Tagging with the IAEA Safety Glossary definitions represents additional metadata which enrich the Safety Standards Series and Nuclear Security Series publications. When opening a publication in the NSS-OUI platform, users see which terms are defined (they are underlined with a dotted blue line) and can retrieve the relevant definition of a particular term simply by clicking on that term. A pop-up window appears displaying the right definition.

1. Defined terms are highlighted.



GSR Part 1 (Rev. 1)
Governmental, Legal and Regulatory Framework for Safety

Objective

1.4. The objective of this Safety Requirements publication is to establish requirements in respect of the governmental, legal and regulatory framework for safety. The framework for safety is to be established for the entire range of facilities and activities, from the use of a limited number of radiation ^① sources to a nuclear power programme. Not all the safety requirements are relevant for all States; account has to be taken of the circumstances pertaining in the State and of the radiation risks ^② associated with its facilities and activities.

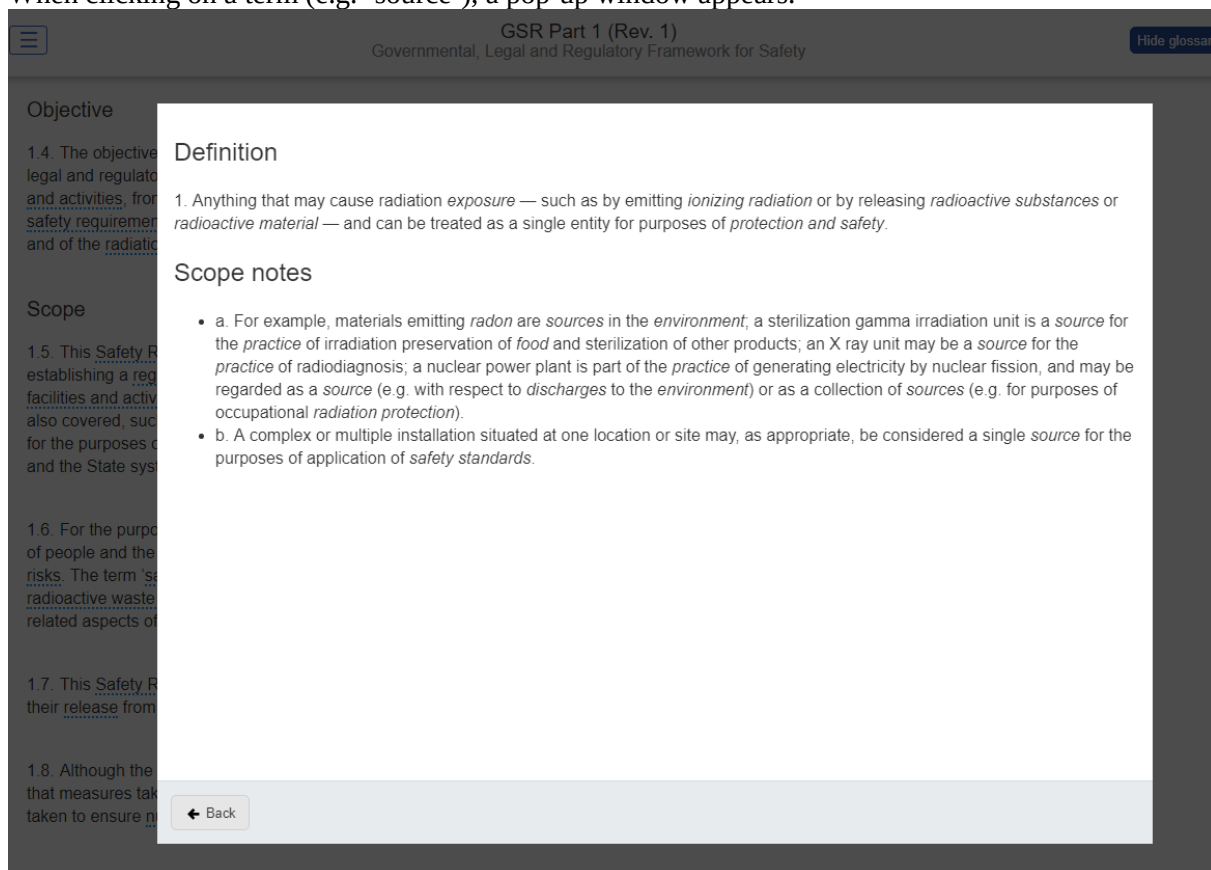
Scope

1.5. This Safety Requirements publication covers the essential aspects of the governmental and legal framework for establishing a regulatory body and for taking other actions necessary to ensure the effective regulatory control of

³ SKOS-Simple Knowledge Organization System

⁴ After detailed studies of existing technologies, the PoolParty was chosen as the semantics management client, as it is a standard IAEA software.

2. When clicking on a term (e.g. ‘source’), a pop-up window appears.



The tagging records the unique identifier of a term with its definition and notes as metadata. When in the future a new definition is agreed for the same term, the versioning control will create a new version of that term with a different unique identifier. This will allow the tagging of new publications with this new definition, but this will not apply retroactively to previous publications based on the previous definition.

The definitions are also available in the Fonto XML Editor of dita files with the potential to guide the Scientific Secretaries by highlighting defined terms when such terms are inserted during the drafting phase and displaying the corresponding latest definitions. This feature is implemented in the NSS-OUI platform, but not yet is use, awaiting for the complete drafting and review process features of NSS-OUI to be implemented.

The same features will progressively be implemented with the nuclear security related set of terms and definitions.

E.2. Electronic version of the IAEA Safety Glossary

The electronic version of the safety glossary is available on a dedicated server: <https://kos.iaea.org/iaea-safety-glossary.html>.

A link to this server is also available in the “welcome page” of the NSS-OUI platform.

When accessing this server, the users have access to all terms and their related definitions and associated notes. The SKOS approach includes also relationship between terms, such as broader terms, narrower terms or related term.

Moreover, whenever the text in the definition or associated notes includes terms defined elsewhere in the glossary, these appear as hyperlinks to facilitate navigating within the glossary.

When a term has several definitions, each association of that term with one definition and the associated notes is considered as one unique entry with one unique identifier, for the purpose of the tagging mentioned in section E.1., but also for the purpose of establishing the relationships (narrower, broader, related) for each element and not for all together.

A search function is also available such that searching a word would display the terms in the glossary that include this word and the user may then select the relevant term to access it directly.

Because the Fonto XML editor searches terms from the glossary in the “back-end” of the production server, these terms are recorded as used. For example, situation where the term defined in the glossary was inserted with an indexing approach (like (container, waste)), the term “waste container” is instead created and the definition inserted with that term, instead of the index.

Abbreviations are removed from the main term and inserted as synonyms. For example, the term “anticipated transient without scram” is inserted as one term and the abbreviation ATWS is inserted as a synonym, while in the published glossary they are displayed together.

Moreover, some terms may be used in different manners depending of the context. An example is “structures, systems and components” defined in the glossary, together with the abbreviation SSCs. In the electronic version of the glossary, not only the abbreviations SSC and SSCs are declared as synonyms, but also other possible uses like “structure, system or component” and “structures, systems or components” so that the editor would be able to identify such other form for which the initial definition in plural and with “and” would also be valid.

Finally, existing terms for which the use is not recommended, identified with a square bracket in the glossary are kept in the electronic version so that the editor would identify any use of these when drafting and alert the Technical Officer that the use of such term is not recommended.

F. FEEDBACK COLLECTION AND ANALYSIS

The purpose of this interface is to establish a systematic process for the collection of feedback on the use of the publications, to store this in a central database for knowledge management and to be able to retrieve the feedback accumulated after a certain time (for example every two years) for specific publications or specific topical areas.

The following are examples of sources of feedback:

- Safety review missions
- Committees meetings
- Technical Cooperation activities
- Incident reporting systems
- Networks activities
- Technical or Consultancy Meetings on a particular topic

All Technical Officers in the NS Department have access to the feedback introduction interface so that, whenever an activity, as listed above, leads to the identification of a feedback from the use of a publication, he/she will have the possibility to document this feedback in the central database.

The members of the Review Committees and the CSS also have access to this feature.

On a case-by-case basis and particularly when it is planned to embark into the revision of a publication or of a set of publications addressing a specific topical area, access may be granted for a specified time to other designated stakeholders in order for them to also include feedback on this publication or this set of publications.

Several options are made available:

- Entering a general comment applicable to the whole publication
- Entering a comment on a whole section
- Entering a comment or a proposal on a specific paragraph

In the case of a proposal, the current text is copied in the feedback interface box. It can then be modified and a tab “compare” would display in a track change mode the changes proposed.

It is also possible to provide several comments on the same part. The total number of comments is available on the top of the page, and, for each part, the total number of individual comments or proposals.

Before submitting the whole set of comments and proposals, they can be downloaded as a draft comments report for potential record keeping or clearance purposes.⁵

An important feature is that any comment or proposal will be kept in the database with two key information:

⁵ This feature still needs further refinement after a pilot test. These are currently being implemented and tested on the development server.

- The publication on which the comment was made. This is necessary to retrieve proposal related to one specific publication
- The topical area allocated to the chunk on which the comment or proposal was made. This is necessary to retrieve proposals or comments made on that topical area because the answer to that comment or proposal is not necessarily to modify the publication on which the comment was made. It may be addressed by modifying another publication covering that topical area. For example, a comment may be introduced in a safety requirement to indicate that more guidance should be provided on how to implement this requirement. In that case, this is in the guide dealing with that topical area that it may be appropriate to insert additional guidance.

A tool is then offered in the “Work area” of the NSS-OUI platform available for the NS staff members to retrieve at any time all feedback accumulated either for a specific publication, or for a specific topical area.

G. PROCESS MANAGEMENT

This section will describe the process flow being under development and test on the development server for the use of the NSS-OUI platform when preparing drafts and submitting them for comments or proposals to consultants or a Technical Meeting as well as through the SPESS B step by step process, by involvement of the Coordination Committee, the Review Committees and, for Safety Standards, the CSS. A specific electronic consultation process is also being development for the Member States consultation. This step is very different compared to other steps since the potential commenter in each Member State cannot be identified in advance.

The main feature is that the same kind of loop can be used to submit a draft be developed further after a pilot exercise of preparing drafts and submitting these to the review process using the NSS-OUI platform. The feedback interface described in the section F could then be used also for these steps with the difference that, compared to feedback on existing publications, the possibility to provide comments on a draft will be restricted to identified groups and for a designated timeframe. Also, the html versions of these drafts will not be publicly available.

H. RESPONSIBILITIES AND ALLOCATION OF RIGHTS

The management and maintenance of the set of metadata is ensured by SSDS. Proposals for amendment can be submitted by the Technical Officers or by stakeholders when using the search capabilities.

The management and maintenance of the glossary is also ensured by SSDS.

When inserting a newly issued publication, the introduction of the text, the allocation of metadata at the collection level and at the chunk level and the glossary tagging is also be carried out by SSDS since it is important for the efficiency of the platform that these activities are carried out in a harmonized manner.

Similarly, the update and addition of new relationship notes is performed in consultation with the relevant Section Head within NS. For example, when a notification is received in SSDS on the issuance of a new publication, including Safety Reports, Technical Reports, TECDOCs or other publications, a proposal is made by SSDS to the responsible Section Heads on possible additional relationship notes to be inserted in existing e-versions available through the NSS-OUI platform.

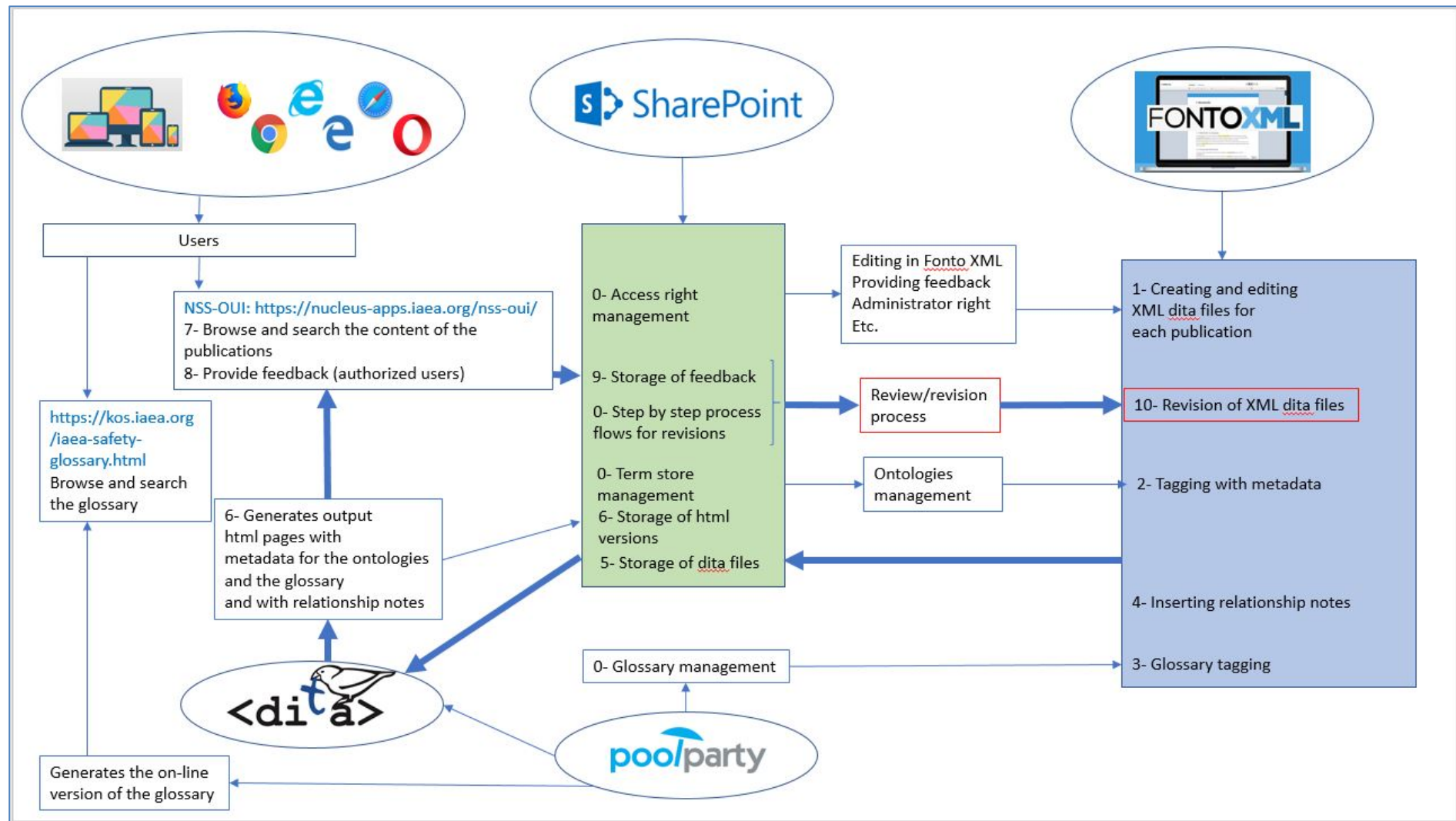
Access right for the feedback collection interface may be granted by SSDS from proposal provided by the Scientific Secretaries of the Review Committees and the CSS.

I. OVERALL ARCHITECTURE

The whole NS-OUI platform, together with the KOS glossary management, is operated through an overall IT architecture involving several software and servers:

- The central functionalities are managed using the SharePoint environment.
- The editing and authoring functionalities are handled using the Fonto XML web-based editor.
- The glossary management involves PoolParty with NKM back-end servers and a KOS front-end server.
- The production of the e-publications available in NSS-OUI is carried out using Dita Open Toolkit.

The figure on the next page provides a simplified description of the interaction of all these components as well as of the feedback loop system.



Governmental, Legal and Regulatory Infrastructure for Safety	National policy and strategy	General
Governmental, Legal and Regulatory Infrastructure for Safety	National policy and strategy	National policy and strategy for decommissioning
Governmental, Legal and Regulatory Infrastructure for Safety	National policy and strategy	National policy and strategy for waste management
Governmental, Legal and Regulatory Infrastructure for Safety	National policy and strategy	Governmental responsibility for the disposal of radioactive waste
Governmental, Legal and Regulatory Infrastructure for Safety	National policy and strategy	International obligations and arrangements for international cooperation
Governmental, Legal and Regulatory Infrastructure for Safety	Legal and regulatory framework	General
Governmental, Legal and Regulatory Infrastructure for Safety	Legal and regulatory framework	Responsibilities of the regulatory bodies specific to occupational exposure
Governmental, Legal and Regulatory Infrastructure for Safety	Legal and regulatory framework	Responsibilities of the government and the regulatory body specific to public exposure
Governmental, Legal and Regulatory Infrastructure for Safety	Legal and regulatory framework	Responsibilities of the government specific to medical exposure
Governmental, Legal and Regulatory Infrastructure for Safety	Legal and regulatory framework	Responsibilities of the regulatory body specific to medical exposure
Governmental, Legal and Regulatory Infrastructure for Safety	Legal and regulatory framework	Responsibility of the regulatory body for the disposal of radioactive waste
Governmental, Legal and Regulatory Infrastructure for Safety	Legal and regulatory framework	Responsibility of the regulatory body for the management of radioactive waste
Governmental, Legal and Regulatory Infrastructure for Safety	Legal and regulatory framework	Emergency preparedness and response
Governmental, Legal and Regulatory Infrastructure for Safety	Legal and regulatory framework	Waste management
Governmental, Legal and Regulatory Infrastructure for Safety	Legal and regulatory framework	Decommissioning
Governmental, Legal and Regulatory Infrastructure for Safety	Legal and regulatory framework	Protective actions to reduce existing or unregulated radiation risks
Governmental, Legal and Regulatory Infrastructure for Safety	Legal and regulatory framework	Responsibilities of the government specific to existing exposure situations
Governmental, Legal and Regulatory Infrastructure for Safety	Legal and regulatory framework	Responsibilities for remediation of areas with residual radioactive material
Governmental, Legal and Regulatory Infrastructure for Safety	Legal and regulatory framework	Interfaces of safety with nuclear security and accounting and control
Governmental, Legal and Regulatory Infrastructure for Safety	Legal and regulatory framework	responsibility for safety
Governmental, Legal and Regulatory Infrastructure for Safety	Legal and regulatory framework	Competence of all parties
Governmental, Legal and Regulatory Infrastructure for Safety	Legal and regulatory framework	Provision of technical services
Governmental, Legal and Regulatory Infrastructure for Safety	Legal and regulatory framework	Coordination of different authorities
Governmental, Legal and Regulatory Infrastructure for Safety	Regulatory Body	Establishment of a regulatory body

Governmental, Legal and Regulatory Infrastructure for Safety	Regulatory Body	Independence of the regulatory body
Governmental, Legal and Regulatory Infrastructure for Safety	Regulatory Body	Organizational structure of the regulatory body
Governmental, Legal and Regulatory Infrastructure for Safety	Regulatory Body	Staffing and competence of the regulatory body
Governmental, Legal and Regulatory Infrastructure for Safety	Regulatory Body	Liaison of the regulatory body with advisory bodies and support organizations
Governmental, Legal and Regulatory Infrastructure for Safety	Regulatory Body	Use of external experts by the regulatory body
Governmental, Legal and Regulatory Infrastructure for Safety	Regulatory Body	Management system of the regulatory body
Governmental, Legal and Regulatory Infrastructure for Safety	Regulatory Body	Liaison between the regulatory body and authorized parties
Governmental, Legal and Regulatory Infrastructure for Safety	Regulatory Body	Stability and consistency of regulatory control
Governmental, Legal and Regulatory Infrastructure for Safety	Regulatory processes	Demonstration of safety
Governmental, Legal and Regulatory Infrastructure for Safety	Regulatory processes	review by the regulatory body
Governmental, Legal and Regulatory Infrastructure for Safety	Regulatory processes	Authorization/Notification
Governmental, Legal and Regulatory Infrastructure for Safety	Regulatory processes	Inspection
Governmental, Legal and Regulatory Infrastructure for Safety	Regulatory processes	Enforcement
Governmental, Legal and Regulatory Infrastructure for Safety	Regulatory processes	Establishing and revising regulation and guides
Governmental, Legal and Regulatory Infrastructure for Safety	Regulatory processes	Safety related records
Governmental, Legal and Regulatory Infrastructure for Safety	Regulatory processes	Regulatory control of radioactive discharges
Governmental, Legal and Regulatory Infrastructure for Safety	Regulatory processes	Feedback of operating experience, reporting incidents
Governmental, Legal and Regulatory Infrastructure for Safety	Regulatory processes	Communication and consultation with interested parties

Leadership and Management for Safety	responsibility for safety	
Leadership and Management for Safety	Leadership	
Leadership and Management for Safety	Management systems	General
Leadership and Management for Safety	Management systems	Integrated management system
Leadership and Management for Safety	Goals, strategies, plans and policies	
Leadership and Management for Safety	Interested parties	
Leadership and Management for Safety	Graded approach	
Leadership and Management for Safety	Documentation of the management systems	
Leadership and Management for Safety	Resources required for safety	Competence building, including strategy and infrastructure for education and training
Leadership and Management for Safety	Resources required for safety	Material and financial resources
Leadership and Management for Safety	Management of processes and activities	General
Leadership and Management for Safety	Management of processes and activities	Documents and records management
Leadership and Management for Safety	Management of processes and activities	Quality management
Leadership and Management for Safety	Management of processes and activities	Change management
Leadership and Management for Safety	Management of processes and activities	Communication
Leadership and Management for Safety	Management of processes and activities	Management of supply chain
Leadership and Management for Safety	Management of supply chain	
Leadership and Management for Safety	Measurement, assessment and improvement of management systems	Measurement and assessment
Leadership and Management for Safety	Measurement, assessment and improvement of management systems	Identification of non-conformances
Leadership and Management for Safety	Measurement, assessment and improvement of management systems	Improvement and corrective actions
Leadership and Management for Safety	Safety culture	

Radiation Protection and safety of radiation sources	Definitions	
Radiation Protection and safety of radiation sources	Principles of radiation protection	
Radiation Protection and safety of radiation sources	Legal and regulatory framework	General
Radiation Protection and safety of radiation sources	Legal and regulatory framework	Responsibilities of the regulatory bodies specific to occupational exposure
Radiation Protection and safety of radiation sources	Legal and regulatory framework	Responsibilities of the government and the regulatory body specific to public exposure
Radiation Protection and safety of radiation sources	Legal and regulatory framework	Responsibilities of the government specific to medical exposure
Radiation Protection and safety of radiation sources	Legal and regulatory framework	Responsibilities of the regulatory body specific to medical exposure
Radiation Protection and safety of radiation sources	Legal and regulatory framework	Responsibilities of the government specific to existing exposure situations
Radiation Protection and safety of radiation sources	Legal and regulatory framework	Responsibilities for remediation of areas with residual radioactive material
Radiation Protection and safety of radiation sources	responsibility for safety	
Radiation Protection and safety of radiation sources	Integrated management system	
Radiation Protection and safety of radiation sources	Graded approach	
Radiation Protection and safety of radiation sources	Authorization/Notification	
Radiation Protection and safety of radiation sources	Exemption and clearance	
Radiation Protection and safety of radiation sources	Justification of practices	
Radiation Protection and safety of radiation sources	Optimization of protection and safety	
Radiation Protection and safety of radiation sources	Dose limits	
Radiation Protection and safety of radiation sources	Dose limits for planned exposure situations	
Radiation Protection and safety of radiation sources	Responsibilities for the safety assessment	
Radiation Protection and safety of radiation sources	Verification of compliance	
Radiation Protection and safety of radiation sources	Prevention and mitigation of accidents (general)	
Radiation Protection and safety of radiation sources	Feedback of operating experience, reporting incidents	
Radiation Protection and safety of radiation sources	Safety of radiation generators and radioactive sources	
Radiation Protection and safety of radiation sources	Management of disused souces	
Radiation Protection and safety of radiation sources	Categories for sealed sources used in common practices	
Radiation Protection and safety of radiation sources	Non medical imaging	
Radiation Protection and safety of radiation sources	Occupational exposure	Protection against occupational exposure
Radiation Protection and safety of radiation sources	Occupational exposure	Compliance by workers
Radiation Protection and safety of radiation sources	Occupational exposure	Cooperation between employers and registrants and licensees
Radiation Protection and safety of radiation sources	Occupational exposure	controlled and supervised areas
Radiation Protection and safety of radiation sources	Occupational exposure	Monitoring, assessing and recording of occupational exposure
Radiation Protection and safety of radiation sources	Occupational exposure	Workers’ health surveillance
Radiation Protection and safety of radiation sources	Occupational exposure	Information, instruction and training
Radiation Protection and safety of radiation sources	Occupational exposure	No benefits as substitutes for measures for protection and safety
Radiation Protection and safety of radiation sources	Occupational exposure	Pregnant women, embryo or foetus, breast-fed infants and persons under 18 years
Radiation Protection and safety of radiation sources	Public exposure	Radioactive waste and discharges
Radiation Protection and safety of radiation sources	Public exposure	Source monitoring and environmental monitoring

Radiation Protection and safety of radiation sources	Public exposure	Consumer products
Radiation Protection and safety of radiation sources	medical exposure	Responsibilities of registrants and licensees to medical exposure
Radiation Protection and safety of radiation sources	medical exposure	Justification of medical exposures
Radiation Protection and safety of radiation sources	medical exposure	Optimization of protection and safety related to medical exposures
Radiation Protection and safety of radiation sources	medical exposure	Release of patients after radionuclide therapy
Radiation Protection and safety of radiation sources	medical exposure	Unintended and accidental medical exposures
Radiation Protection and safety of radiation sources	medical exposure	Records and periodic reviews for medical exposures
Radiation Protection and safety of radiation sources	Emergency situations	Emergency preparedness and response
Radiation Protection and safety of radiation sources	Emergency situations	Criteria for emergency preparedness and response
Radiation Protection and safety of radiation sources	Emergency situations	Protecting emergency workers and helpers
Radiation Protection and safety of radiation sources	Emergency situations	Transition to an existing exposure situation
Radiation Protection and safety of radiation sources	Existing exposure situations	Justification for and optimization in existing exposure situations
Radiation Protection and safety of radiation sources	Existing exposure situations	Exposure due to radon indoors
Radiation Protection and safety of radiation sources	Existing exposure situations	Radionuclides in commodities
Radiation Protection and safety of radiation sources	Existing exposure situations	Exposure in workplaces
Radiation Protection and safety of radiation sources	Control of orphan sources	

Safety Assessment	Graded approach	
Safety Assessment	Scope of the safety assessment	
Safety Assessment	Responsibilities for the safety assessment	
Safety Assessment	Management of the safety assessment	
Safety Assessment	Purpose of the safety assessment	
Safety Assessment	Preparation of the safety assessment	
Safety Assessment	Assessment of the possible radiation risks	
Safety Assessment	Assessment of safety functions	
Safety Assessment	Assessment of site characteristics	
Safety Assessment	Assessment of provisions for radiation protection	
Safety Assessment	Assessment of engineering aspects	
Safety Assessment	Assessment of human factors	
Safety Assessment	Assessment of safety over the lifetime of a facility or activity	
Safety Assessment	Assessment of defence in depth	
Safety Assessment	criticality safety/ reactivity control	
Safety Assessment	Scope of the safety analysis	
Safety Assessment	Deterministic and probabilistic approaches	General
Safety Assessment	Deterministic and probabilistic approaches	Deterministic safety assessment
Safety Assessment	Deterministic and probabilistic approaches	PSA level 1
Safety Assessment	Deterministic and probabilistic approaches	PSA level 2
Safety Assessment	Criteria for judging safety	
Safety Assessment	Uncertainty and sensitivity analysis	
Safety Assessment	validation and verification of computer codes	
Safety Assessment	Use of operational experience	
Safety Assessment	Documentation of the safety assessment	Format and content of the safety analysis report
Safety Assessment	Independent verification	
Safety Assessment	Use of the results of the safety assessment	General
Safety Assessment	Use of the results of the safety assessment	Maintenance, testing, surveillance and inspection programmes
Safety Assessment	Use of the results of the safety assessment	Operational procedures
Safety Assessment	Use of the results of the safety assessment	staff competence
Safety Assessment	Maintenance of the safety assessment	
Safety Assessment	Periodic safety review	

Safety of the Predisposal Management of Radioactive Waste	Legal and regulatory framework	
Safety of the Predisposal Management of Radioactive Waste	National policy and strategy for waste management	
Safety of the Predisposal Management of Radioactive Waste	Responsibility of the regulatory body for the management of radioactive waste	
Safety of the Predisposal Management of Radioactive Waste	responsibility for safety	
Safety of the Predisposal Management of Radioactive Waste	Interfaces of safety with nuclear security and accounting and control	
Safety of the Predisposal Management of Radioactive Waste	Interdependences among all steps in predisposal waste management	
Safety of the Predisposal Management of Radioactive Waste	Integrated management system	
Safety of the Predisposal Management of Radioactive Waste	Radioactive waste generation and control	
Safety of the Predisposal Management of Radioactive Waste	Characterization and classification of radioactive waste	
Safety of the Predisposal Management of Radioactive Waste	Processing of radioactive waste	
Safety of the Predisposal Management of Radioactive Waste	Storage of radioactive waste	
Safety of the Predisposal Management of Radioactive Waste	Siting	
Safety of the Predisposal Management of Radioactive Waste	Design	Provisions for construction and commissioning
Safety of the Predisposal Management of Radioactive Waste	Design	Waste packages
Safety of the Predisposal Management of Radioactive Waste	Design	Design for Radioprotection
Safety of the Predisposal Management of Radioactive Waste	Design	Instrumentation and Control
Safety of the Predisposal Management of Radioactive Waste	Design	Supporting Systems
Safety of the Predisposal Management of Radioactive Waste	Commissioning programme	
Safety of the Predisposal Management of Radioactive Waste	Operation	Operational Limits and Conditions
Safety of the Predisposal Management of Radioactive Waste	Operation	Operational Procedures
Safety of the Predisposal Management of Radioactive Waste	Operation	Criticality safety
Safety of the Predisposal Management of Radioactive Waste	Operation	Radioactive decay heat
Safety of the Predisposal Management of Radioactive Waste	Operation	Radiation monitoring
Safety of the Predisposal Management of Radioactive Waste	Operation	Maintenance, testing, surveillance and inspection programmes
Safety of the Predisposal Management of Radioactive Waste	Operation	Containment of radioactive waste
Safety of the Predisposal Management of Radioactive Waste	Operation	Emergency preparedness
Safety of the Predisposal Management of Radioactive Waste	Decommissioning plan	

Safety of the Predisposal Management of Radioactive Waste	Radioactive waste acceptance criteria	
Safety of the Predisposal Management of Radioactive Waste	Preparation of the safety assessment	
Safety of the Predisposal Management of Radioactive Waste	Scope of the safety assessment	
Safety of the Predisposal Management of Radioactive Waste	Documentation of the safety assessment	
Safety of the Predisposal Management of Radioactive Waste	Radioactive waste and discharges	

Safety of the Decommissioning	Legal and regulatory framework	
Safety of the Decommissioning	National policy and strategy for decommissioning	
Safety of the Decommissioning	responsibility for safety	
Safety of the Decommissioning	Selecting a decommissioning strategy	
Safety of the Decommissioning	Decommissioning plan	
Safety of the Decommissioning	Optimization of protection and safety	
Safety of the Decommissioning	Financing of decommissioning	
Safety of the Decommissioning	Integrated management system	
Safety of the Decommissioning	Graded approach	
Safety of the Decommissioning	safety assessment for the decommissioning	
Safety of the Decommissioning	Conduct of decommissioning	
Safety of the Decommissioning	Completion of decommissioning, termination of authorization and release from regulatory control	
Safety of the Decommissioning	Radioactive waste management	
Safety of the Decommissioning	Emergency preparedness and response	

Preparedness and response for a nuclear or radiological accident	Goals of emergency preparedness and response	
Preparedness and response for a nuclear or radiological accident	Establishing an emergency management system / legal and regulatory framework / assignment of responsibilities	General
Preparedness and response for a nuclear or radiological accident	Establishing an emergency management system / legal and regulatory framework / assignment of responsibilities	Responsibilities of operating organizations
Preparedness and response for a nuclear or radiological accident	Responsibilities / coordination of International organizations	
Preparedness and response for a nuclear or radiological accident	Hazard assessment/Emergency preparedness categories	
Preparedness and response for a nuclear or radiological accident	Protection strategy including generic criteria	
Preparedness and response for a nuclear or radiological accident	Managing emergency response operations	
Preparedness and response for a nuclear or radiological accident	Identifying and notifying a nuclear or radiological emergency and activating an emergency response	
Preparedness and response for a nuclear or radiological accident	Taking mitigatory actions (on-site and interface with off-site)	
Preparedness and response for a nuclear or radiological accident	Taking urgent/early protective actions and other response actions (both on-site and off-site and interface)	
Preparedness and response for a nuclear or radiological accident	Instructing, warning and informing the public affected or potentially affected	
Preparedness and response for a nuclear or radiological accident	Protecting emergency workers and helpers	
Preparedness and response for a nuclear or radiological accident	Managing the medical response	
Preparedness and response for a nuclear or radiological accident	General public communications	
Preparedness and response for a nuclear or radiological accident	Managing radioactive waste in a nuclear or radiological emergency	
Preparedness and response for a nuclear or radiological accident	Mitigating non-radiological consequences	
Preparedness and response for a nuclear or radiological accident	Requesting, providing and receiving international assistance	
Preparedness and response for a nuclear or radiological accident	Terminating the emergency	Transition to a planned or an existing exposure situation
Preparedness and response for a nuclear or radiological accident	Analysing the emergency and the emergency response	
Preparedness and response for a nuclear or radiological accident	Organization and staffing	
Preparedness and response for a nuclear or radiological accident	Coordination of emergency preparedness and response	
Preparedness and response for a nuclear or radiological accident	Plans and procedures	
Preparedness and response for a nuclear or radiological accident	Logistical support and facilities	

Preparedness and response for a nuclear or radiological accident	Training, drills and exercises	
Preparedness and response for a nuclear or radiological accident	Quality management programme	

Site Evaluation for safety	Applying the safety principles and concepts	
Site Evaluation for safety	Graded approach	
Site Evaluation for safety	Management systems	
Site Evaluation for safety	Responsibility for safety	
Site Evaluation for safety	General requirements	Evaluation process
Site Evaluation for safety	General requirements	Confirmation of site suitability
Site Evaluation for safety	General requirements	Site safety objectives
Site Evaluation for safety	General requirements	Site and regional characteristics
Site Evaluation for safety	General requirements	Site protection measures
Site Evaluation for safety	General requirements	Data collection for natural hazards
Site Evaluation for safety	General requirements	Insufficiency of historical data
Site Evaluation for safety	General requirements	Evaluation of human induced external hazards
Site Evaluation for safety	General requirements	Potential effects of the nuclear installation on population and the environment
Site Evaluation for safety	General requirements	Feasibility of implementing emergency plans
Site Evaluation for safety	Hazard specific requirements	Seismic ground motion and fault displacement
Site Evaluation for safety	Hazard specific requirements	Volcanic hazards
Site Evaluation for safety	Hazard specific requirements	Meteorological events
Site Evaluation for safety	Hazard specific requirements	Flooding hazards
Site Evaluation for safety	Hazard specific requirements	Geotechnical hazards
Site Evaluation for safety	Hazard specific requirements	Human induced hazards
Site Evaluation for safety	Hazard specific requirements	Hazards affecting the adequacy of an ultimate heat sink
Site Evaluation for safety	Site Characteristics and potential effects of the nuclear installation	General
Site Evaluation for safety	Site Characteristics and potential effects of the nuclear installation	Atmospheric dispersion
Site Evaluation for safety	Site Characteristics and potential effects of the nuclear installation	Dispersion through surface water
Site Evaluation for safety	Site Characteristics and potential effects of the nuclear installation	Dispersion through groundwater
Site Evaluation for safety	Site Characteristics and potential effects of the nuclear installation	Population distribution
Site Evaluation for safety	Site Characteristics and potential effects of the nuclear installation	Use of land and water
Site Evaluation for safety	Site Characteristics and potential effects of the nuclear installation	Ambient radioactivity
Site Evaluation for safety	Monitoring and periodic re-evaluation	

Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Applying the safety principles and concepts	
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Management of safety in design	Responsibilities in the management of safety in design
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Management of safety in design	Management system for design
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Management of safety in design	Integrity of design of the plant throughout the lifetime
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Principal technical requirements	Fundamental safety functions
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Principal technical requirements	Radiation protection objective
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Principal technical requirements	Design objective
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Principal technical requirements	Application of defence in depth
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Principal technical requirements	Interfaces of safety with nuclear security and accounting and control
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Principal technical requirements	Proven engineering practices
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Principal technical requirements	Safety assessment and design iteration
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Principal technical requirements	Provision for construction/commissioning
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Principal technical requirements	Features to facilitate radioactive waste management and decommissioning
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Design basis	categorization / Normal operation, Anticipated operational occurrences and accident conditions
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Design basis	Design basis for items important to safety
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Design basis	Design limits
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Design basis	Postulated initiating events
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Design basis	Internal hazards
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Design basis	External hazards
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Design basis	Engineering design rules
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Design basis	Design basis accidents
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Design basis	Design extension conditions/combination of failures
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Design basis	Physical separation and independence of safety systems
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Design basis	Safety classification

Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Design basis	Reliability of items important to safety
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Design basis	Common cause failures
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Design basis	Single failure criterion
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Design basis	Fail-safe design
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Design basis	Support service systems
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Design basis	Operational limits and conditions for safe operation
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Design for safe operation over the lifetime of the plant	Calibration, testing, maintenance, repair, replacement, inspection and monitoring of items important to safety
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Design for safe operation over the lifetime of the plant	Qualification of items important to safety
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Design for safe operation over the lifetime of the plant	Ageing management
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Man machine interface	
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Safety systems, and safety features for design extension conditions, of units of a multiple unit nuclear power plant	
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Systems containing fissile material or radioactive material	
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Nuclear power plants used for cogeneration of heat and power, heat generation or desalination	
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Escape routes from the installation	
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Communication systems at the installation	
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Control of access to the installation	
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Prevention of unauthorized access to, or interference with items important to safety	
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Prevention of harmful interactions of systems important to safety	
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Interactions between the electrical power grid and the plant	
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Safety analysis of the plant design	General
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Safety analysis of the plant design	Deterministic approach
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Safety analysis of the plant design	Probabilistic approach
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Reactor core and associated features	Performance of fuel elements and assemblies
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Reactor core and associated features	Structural capability of the reactor core

Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Reactor core and associated features	Control of the reactor core
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Reactor core and associated features	Reactor shutdown
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Reactor coolant systems	Design of reactor coolant systems
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Reactor coolant systems	Overpressure protection of the reactor coolant pressure boundary
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Reactor coolant systems	Inventory of reactor coolant
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Reactor coolant systems	Cleanup of reactor coolant
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Reactor coolant systems	Removal of residual heat from the reactor core
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Reactor coolant systems	Emergency cooling of the reactor core
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Reactor coolant systems	Heat transfer to an ultimate heat sink
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Containment structure and containment system	Containment system for the reactor
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Containment structure and containment system	Control of radioactive releases from the containment
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Containment structure and containment system	Isolation of the containment
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Containment structure and containment system	Access to the containment
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Containment structure and containment system	Control of containment conditions
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Instrumentation and control systems	Provision of instrumentation
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Instrumentation and control systems	Control systems
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Instrumentation and control systems	Protection system
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Instrumentation and control systems	Reliability and testability of instrumentation and control systems
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Instrumentation and control systems	Use of computer based equipment in systems important to safety
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Instrumentation and control systems	Separation of protection systems and control systems
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Instrumentation and control systems	Control room
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Instrumentation and control systems	Supplementary control room
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	On-site emergency response facilities	
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Emergency power supply and alternate power sources	

Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Supporting systems and auxiliary systems	Performance of supporting systems and auxiliary systems
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Supporting systems and auxiliary systems	Heat transport systems
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Supporting systems and auxiliary systems	Process sampling systems and post-accident sampling systems
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Supporting systems and auxiliary systems	Compressed air systems
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Supporting systems and auxiliary systems	Air conditioning systems and ventilation systems
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Supporting systems and auxiliary systems	Fire protection systems
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Supporting systems and auxiliary systems	Lighting systems
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Supporting systems and auxiliary systems	Overhead lifting equipment
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Other power conversion systems	for NPPs: Steam supply system, feedwater system and turbine generators
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Treatment of radioactive effluents and radioactive waste	Systems for treatment and control of waste
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Treatment of radioactive effluents and radioactive waste	Systems for treatment and control of effluents
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Fuel handling and storage systems	
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Occupational radiation protection	Design for radiation protection
Design of NPPs, RRs and FCFs for safety (select also the type of installation)	Occupational radiation protection	Means of radiation monitoring

Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	Safety objective and principles	
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	The management and organizational structure of the operating organization	responsibility for safety
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	The management and organizational structure of the operating organization	Safety policy
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	The management and organizational structure of the operating organization	Management system
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	The management and organizational structure of the operating organization	Structure and functions of the operating organization
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	The management and organizational structure of the operating organization	Staffing of the operating organization
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	The management and organizational structure of the operating organization	Qualification and training of personnel
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	The management and organizational structure of the operating organization	Performance of safety related activities
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	The management and organizational structure of the operating organization	Performance of safety related activities
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	The management and organizational structure of the operating organization	Monitoring and review of safety performance
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	The management and organizational structure of the operating organization	Records and reports
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	Operation	Operational limits and conditions - Operating instructions
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	Operation	Control of configuration
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	Operation	Equipment qualification
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	Operation	Operating procedures
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	Operation	Operation control rooms and control equipment
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	Operation	Material conditions and housekeeping
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	Operation	Core management and fuel handling

Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	Operation	Accident management programme
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	Operation	Emergency preparedness
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	Operation	Fire safety
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	Operation	Non-radiation-related safety/industrial safety
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	Operation	Radiation protection
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	Operation	Chemistry programme
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	Operation	Management of modifications
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	Operation	Feedback of operating experience, reporting incidents
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	Operation	Periodic safety review
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	Operation	Maintenance, testing, surveillance and inspection programmes
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	Operation	Outage management
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	Operation	Ageing management
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	Operation	Programme for long term operation
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	Operation	Management of radioactive waste
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	Operation	Interfaces of safety with nuclear security and accounting and control
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	Commissioning programme	
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	Decommissioning plan	
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	For Research Reactors	Graded approach for Research Reactors

Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	For Research Reactors	Utilization and modification of Research Reactors
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	For Research Reactors	Provision for extended shutdown of Reserach Reactors
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	For Research Reactors	Experimental devices in Research Reactors
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	For Fuel Cycle Facilities	Graded approach for Fuel Cycle Facilities
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	For Fuel Cycle Facilities	Criticality safety in Fuel Cycle Facilities
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	For Fuel Cycle Facilities	Radiolysis
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	For Fuel Cycle Facilities	Non radiological hazards
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	For Fuel Cycle Facilities	Industrial and Chemical safety
Commissioning and Operation of NPPs, RRs and FCFs for safety (select also the type of installation)	For Fuel Cycle Facilities	Radioactive decay heat

Safe Disposal of radioactive waste	Governmental responsibility for the disposal of radioactive waste	
Safe Disposal of radioactive waste	Responsibility of the regulatory body for the disposal of radioactive waste	
Safe Disposal of radioactive waste	Responsibility of the regulatory body for the management of radioactive waste	
Safe Disposal of radioactive waste	responsibility for safety	
Safe Disposal of radioactive waste	Management systems	
Safe Disposal of radioactive waste	General safety approach and design concept	Application of the fundamental safety principles
Safe Disposal of radioactive waste	General safety approach and design concept	Radiation protection in the operational period
Safe Disposal of radioactive waste	General safety approach and design concept	Radiation protection in the post-closure period
Safe Disposal of radioactive waste	General safety approach and design concept	Environmental and non-radiological concerns
Safe Disposal of radioactive waste	General safety approach and design concept	Importance of safety in the development and operation of a disposal facility
Safe Disposal of radioactive waste	General safety approach and design concept	Passive means for the safety
Safe Disposal of radioactive waste	General safety approach and design concept	Understanding of a disposal facility and confidence in safety
Safe Disposal of radioactive waste	General safety approach and design concept	Multiple safety functions
Safe Disposal of radioactive waste	General safety approach and design concept	Containment of radioactive waste
Safe Disposal of radioactive waste	General safety approach and design concept	Isolation of radioactive waste
Safe Disposal of radioactive waste	General safety approach and design concept	Surveillance and control of passive safety features
Safe Disposal of radioactive waste	General safety approach and design concept	Interfaces of safety with nuclear security and accounting and control
Safe Disposal of radioactive waste	General safety approach and design concept	Waste acceptance in a disposal facility
Safe Disposal of radioactive waste	Safety case and safety assessment	Preparation, approval and use of the safety case and safety assessment
Safe Disposal of radioactive waste	Safety case and safety assessment	Scope of the safety case and safety assessment
Safe Disposal of radioactive waste	Safety case and safety assessment	Documentation of the safety case and safety assessment
Safe Disposal of radioactive waste	Development, operation and closure	Framework. Step by step development and evaluation
Safe Disposal of radioactive waste	Development, operation and closure	Site characterization for a disposal facility
Safe Disposal of radioactive waste	Development, operation and closure	Design of a disposal facility
Safe Disposal of radioactive waste	Development, operation and closure	Construction of a disposal facility
Safe Disposal of radioactive waste	Development, operation and closure	Operation of a disposal facility
Safe Disposal of radioactive waste	Development, operation and closure	Closure of a disposal facility
Safe Disposal of radioactive waste	Monitoring programmes at a disposal facility	
Safe Disposal of radioactive waste	The period after closure and institutional controls	

Safe transport of radioactive material	Definitions	
Safe transport of radioactive material	General provisions	Radiation protection
Safe transport of radioactive material	General provisions	Emergency response
Safe transport of radioactive material	General provisions	Management system
Safe transport of radioactive material	General provisions	Compliance assurance
Safe transport of radioactive material	General provisions	Non-compliance
Safe transport of radioactive material	General provisions	Special arrangement
Safe transport of radioactive material	General provisions	Training
Safe transport of radioactive material	Activity limits and classification	General provisions
Safe transport of radioactive material	Activity limits and classification	Basic radionuclide values
Safe transport of radioactive material	Activity limits and classification	Determination of basic radionuclide values
Safe transport of radioactive material	Activity limits and classification	Classification of material
Safe transport of radioactive material	Activity limits and classification	Classification of packages
Safe transport of radioactive material	Activity limits and classification	Special arrangement
Safe transport of radioactive material	Requirements and controls for transport	Requirements before the first shipment
Safe transport of radioactive material	Requirements and controls for transport	Requirements before each shipment
Safe transport of radioactive material	Requirements and controls for transport	Transport of goods
Safe transport of radioactive material	Requirements and controls for transport	Other dangerous properties of content
Safe transport of radioactive material	Requirements and controls for transport	Requirements and controls for contamination and for leaking packages
Safe transport of radioactive material	Requirements and controls for transport	Requirements and controls for transport of excepted packages
Safe transport of radioactive material	Requirements and controls for transport	Requirements and controls for transport of LSA material and SCO in industrial packages or unpackages
Safe transport of radioactive material	Requirements and controls for transport	Determination of transport index
Safe transport of radioactive material	Requirements and controls for transport	Criticality safety index. Limits on transport index, criticality safety index and radiation levels
Safe transport of radioactive material	Requirements and controls for transport	Categories
Safe transport of radioactive material	Requirements and controls for transport	Marking, labelling and placarding
Safe transport of radioactive material	Requirements and controls for transport	Consignor's responsibilities
Safe transport of radioactive material	Requirements and controls for transport	Transport and storage in transit
Safe transport of radioactive material	Requirements and controls for transport	Custom operation
Safe transport of radioactive material	Requirements and controls for transport	Undeliverable consignments
Safe transport of radioactive material	Requirements and controls for transport	Retention and availability of transport documents by carriers
Safe transport of radioactive material	Requirements for radioactive material and for packagings and packages	Requirements for radioactive material
Safe transport of radioactive material	Requirements for radioactive material and for packagings and packages	Requirements for material excepted from fissile classification
Safe transport of radioactive material	Requirements for radioactive material and for packagings and packages	General requirements for all packagings and packages
Safe transport of radioactive material	Requirements for radioactive material and for packagings and packages	Additional requirements for packages transported by air

Safe transport of radioactive material	Requirements for radioactive material and for packagings and packages	Requirements for excepted packages
Safe transport of radioactive material	Requirements for radioactive material and for packagings and packages	Requirements for industrial packages
Safe transport of radioactive material	Requirements for radioactive material and for packagings and packages	Requirements for packages containing uranium hexafluoride
Safe transport of radioactive material	Requirements for radioactive material and for packagings and packages	Requirements for Type A packages
Safe transport of radioactive material	Requirements for radioactive material and for packagings and packages	Requirements for Type B(U) packages
Safe transport of radioactive material	Requirements for radioactive material and for packagings and packages	Requirements for Type B(M) packages
Safe transport of radioactive material	Requirements for radioactive material and for packagings and packages	Requirements for Type C packages
Safe transport of radioactive material	Requirements for radioactive material and for packagings and packages	Requirements for packages containing fissile material
Safe transport of radioactive material	Test procedures	Demonstration of compliance
Safe transport of radioactive material	Test procedures	Leaching test for LSA-III material and low dispersible radioactive material
Safe transport of radioactive material	Test procedures	Tests for special form radioactive material
Safe transport of radioactive material	Test procedures	Tests for low dispersible radioactive material
Safe transport of radioactive material	Test procedures	Tests for packages
Safe transport of radioactive material	Approval and administrative requirements	General
Safe transport of radioactive material	Approval and administrative requirements	Approval of special form radioactive material and low dispersible radioactive material
Safe transport of radioactive material	Approval and administrative requirements	Approval of material excepted from fissile classification
Safe transport of radioactive material	Approval and administrative requirements	Approval of package designs
Safe transport of radioactive material	Approval and administrative requirements	Approval of alternative activity limits for an exempt consignment of instruments or articles
Safe transport of radioactive material	Approval and administrative requirements	Transitional arrangements
Safe transport of radioactive material	Approval and administrative requirements	Notification and registration of serial numbers
Safe transport of radioactive material	Approval and administrative requirements	Approval of shipments
Safe transport of radioactive material	Approval and administrative requirements	Approval of shipments under special arrangement
Safe transport of radioactive material	Approval and administrative requirements	Competent authority certificates of approval
Safe transport of radioactive material	Approval and administrative requirements	Contents of certificates of approval
Safe transport of radioactive material	Approval and administrative requirements	Validation of certificates
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	General	
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Policy, Strategy and Objectives of Nuclear Security Regime	
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Infrastructure	General

Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Infrastructure	Capacity building
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Legal Framework (State Responsibilities)	General
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Legal Framework (State Responsibilities)	Defining Roles and Responsibilities
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Legal Framework (State Responsibilities)	Offences and penalties/sanctions
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Legal Framework (State Responsibilities)	Graded approach to laws and regulations
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Legal Framework (State Responsibilities)	Import/Export of radioactive material and sources
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Legal Framework (State Responsibilities)	Import/Export of nuclear material
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Legal Framework (State Responsibilities)	International transport
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Legal Framework (State Responsibilities)	International Treaties
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Legal Framework (State Responsibilities)	Defining material and facilities subject to the nuclear security regime
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Legal Framework (State Responsibilities)	National radiological emergency plan
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Legal Framework (State Responsibilities)	National register of radioactive sources
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Legal Framework (State Responsibilities)	National Threat Assessment
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Legal Framework (State Responsibilities)	Coordination among competent authorities
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Legal Framework (State Responsibilities)	Coordinating body for MORC
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Legal Framework (State Responsibilities)	National framework for confidentiality
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Legal Framework (State Responsibilities)	Detection Architecture/Strategy

Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Legal Framework (State Responsibilities)	National response framework for nuclear security events
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Regulatory Body	General
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Regulatory Body	Independence of the regulatory body
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Regulatory Body	Authority, competence and resources for the Regulatory Body
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Regulatory Body	Establishing Regulations
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Regulatory Body	Licensing and granting authorizations
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Regulatory Body	Evaluation of nuclear security measures/inspections
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Responsibility of a Competent Authority (incl. Regulatory Body)	Implementation of the legislative framework
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Responsibility of a Competent Authority (incl. Regulatory Body)	Reporting of Nuclear Security Events
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Responsibility of a Competent Authority (incl. Regulatory Body)	National detection architecture implementation
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Responsibility of a Competent Authority (incl. Regulatory Body)	National Response Plan
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Risk management for Graded Approach	Classification of Nuclear Security Events using a Graded Approach
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Risk management for Graded Approach	Categorization of Nuclear Material (Unauthorized Removal)
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Risk management for Graded Approach	Categorization of Radioactive Sources (Unauthorized Removal)
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Risk management for Graded Approach	Threshold for Unacceptable Radiological Consequences (Sabotage)
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Risk management for Graded Approach	Threshold for High Radiological Consequences (Sabotage)
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	International Cooperation and Assistance	Information Exchange

Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	International Cooperation and Assistance	Location and recovery of nuclear and radioactive material
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	International Cooperation and Assistance	Technical cooperation and assistance
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	International Cooperation and Assistance	Recovery and return of seized material
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	International Cooperation and Assistance	National point of contact
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Nuclear Forensics	
Governmental, Legal and Regulatory Infrastructure and Framework for Nuclear Security	Interface with Nuclear Safety	
Sustainability of Nuclear Security Regime	General	
Sustainability of Nuclear Security Regime	Management System for Security	Security Policy
Sustainability of Nuclear Security Regime	Management System for Security	Clear roles and responsibilities
Sustainability of Nuclear Security Regime	Management System for Security	Communication and coordination
Sustainability of Nuclear Security Regime	Management System for Security	Interface with the regulator
Sustainability of Nuclear Security Regime	Management System for Security	Provision of Resources
Sustainability of Nuclear Security Regime	Management System for Security	Quality Assurance
Sustainability of Nuclear Security Regime	Management System for Security	Dcumentation of Procedures and Work Management
Sustainability of Nuclear Security Regime	Management System for Security	Change Management
Sustainability of Nuclear Security Regime	Management System for Security	Human Resources Development
Sustainability of Nuclear Security Regime	Management System for Security	Training and Qualification
Sustainability of Nuclear Security Regime	Management System for Security	Contingency plans and drills
Sustainability of Nuclear Security Regime	Management System for Security	Information Security
Sustainability of Nuclear Security Regime	Management System for Security	Trustworthiness
Sustainability of Nuclear Security Regime	Management System for Security	Work Environment
Sustainability of Nuclear Security Regime	Management System for Security	Feedback process and reporting of incidents
Sustainability of Nuclear Security Regime	Management System for Security	Inventory of material or sources
Sustainability of Nuclear Security Regime	Management System for Security	Performance Measurement
Sustainability of Nuclear Security Regime	Management System for Security	Operations and maintenance
Sustainability of Nuclear Security Regime	Management System for Security	Self-assessment
Sustainability of Nuclear Security Regime	Establishment of Sustainability Program	
Sustainability of Nuclear Security Regime	Nuclear Security Culture	
Security of Material and Facilities: Activities/Responsibilities of License Holders	Security systems for facilities and activities against threat	Unauthorized Removal

Security of Material and Facilities: Activities/Responsibilities of License Holders	Security systems for facilities and activities against threat	Sabotage
Security of Material and Facilities: Activities/Responsibilities of License Holders	Facility-level Target Identification	Limited Area
Security of Material and Facilities: Activities/Responsibilities of License Holders	Facility-level Target Identification	Protected Area
Security of Material and Facilities: Activities/Responsibilities of License Holders	Facility-level Target Identification	Inner Area
Security of Material and Facilities: Activities/Responsibilities of License Holders	Facility-level Target Identification	Vital Area
Security of Material and Facilities: Activities/Responsibilities of License Holders	Facility-level Target Identification	Targets related to radioactive sources
Security of Material and Facilities: Activities/Responsibilities of License Holders	Consequence Assessment for Sabotage	
Security of Material and Facilities: Activities/Responsibilities of License Holders	Developing and Implementing Security Plan	Facility Security Plan
Security of Material and Facilities: Activities/Responsibilities of License Holders	Developing and Implementing Security Plan	Transport Security Plan
Security of Material and Facilities: Activities/Responsibilities of License Holders	Defence in Depth	Compensatory measures
Security of Material and Facilities: Activities/Responsibilities of License Holders	Defence in Depth	Central Alarm Station
Security of Material and Facilities: Activities/Responsibilities of License Holders	Graded Approach to Implementation	
Security of Material and Facilities: Activities/Responsibilities of License Holders	Deterrence Measures	
Security of Material and Facilities: Activities/Responsibilities of License Holders	Detection and Assessment Measures	General
Security of Material and Facilities: Activities/Responsibilities of License Holders	Detection and Assessment Measures	Surveillance
Security of Material and Facilities: Activities/Responsibilities of License Holders	Delay Measures	
Security of Material and Facilities: Activities/Responsibilities of License Holders	Notification of Nuclear Security Event	
Security of Material and Facilities: Activities/Responsibilities of License Holders	Response Measures and Contingency Plans	Effectiveness of Nuclear Security System in an Emergency

Security of Material and Facilities: Activities/Responsibilities of License Holders	Response Measures and Contingency Plans	Mitigation and minimization of consequences
Security of Material and Facilities: Activities/Responsibilities of License Holders	Computer Security Measures	
Security of Material and Facilities: Activities/Responsibilities of License Holders	Measures Against the Insider Threat	
Security of Material and Facilities: Activities/Responsibilities of License Holders	Physical protection measures	General
Security of Material and Facilities: Activities/Responsibilities of License Holders	Physical protection measures	Physical protection system design and evaluation
Security of Material and Facilities: Activities/Responsibilities of License Holders	Physical protection measures	Physical protection technologies and equipment
Security of Material and Facilities: Activities/Responsibilities of License Holders	Access Control	
Security of Material and Facilities: Activities/Responsibilities of License Holders	Facilities (General)	
Security of Material and Facilities: Activities/Responsibilities of License Holders	Nuclear Facilities	Security Design of Instrumentation and Control (I&C) Systems
Security of Material and Facilities: Activities/Responsibilities of License Holders	Nuclear Facilities	Nuclear Material Accounting and Control (NMAC)
Security of Material and Facilities: Activities/Responsibilities of License Holders	Radiological Facilities	General
Security of Material and Facilities: Activities/Responsibilities of License Holders	Radiological Facilities	Inventory of Radioactive Sources
Security of Material and Facilities: Activities/Responsibilities of License Holders	Radiological Facilities	Storage of Radioactive Material
Security of Material and Facilities: Activities/Responsibilities of License Holders	Transport (General)	Security during transport
Security of Material and Facilities: Activities/Responsibilities of License Holders	Transport (General)	Security during temporary storage
Security of Material and Facilities: Activities/Responsibilities of License Holders	Transport (General)	Special considerations for different modes of transport
Security of Material and Facilities: Activities/Responsibilities of License Holders	Transport (General)	Coordination during transport
Security of Material and Facilities: Activities/Responsibilities of License Holders	Transport (General)	Security levels

Security of Material and Facilities: Activities/Responsibilities of License Holders	Transport of Nuclear Material	General
Security of Material and Facilities: Activities/Responsibilities of License Holders	Transport of Nuclear Material	Establishing a transport control centre
Security of Material and Facilities: Activities/Responsibilities of License Holders	Transport of Radioactive Material	
Security of Material and Facilities: Activities/Responsibilities of License Holders	Interface with Nuclear Safety	
Threat Assessment	Threat Assessment Process	General
Threat Assessment	Threat Assessment Process	Continuous review of threat
Threat Assessment	Design Basis Threat (DBT)	
Threat Assessment	Alternative Threat Statement	
Threat Assessment	Identification and assessment of nuclear security threats	National-level Facility targets
Threat Assessment	Identification and assessment of nuclear security threats	National-level Strategic Locations
Threat Assessment	Identification and assessment of nuclear security threats	Attributes and Characteristics of Threats
Threat Assessment	Identification and assessment of nuclear security threats	Cyber Threats
Threat Assessment	Identification and assessment of nuclear security threats	Insider Threats
Threat Assessment	Identification and assessment of nuclear security threats	Major Public Events
Material out of regulatory control (MORC)	Security systems for MORC against threat	
Material out of regulatory control (MORC)	Graded Approach to implementation	
Material out of regulatory control (MORC)	Defence in depth approach	
Material out of regulatory control (MORC)	Deterrence Measures	General
Material out of regulatory control (MORC)	Deterrence Measures	Public dissemination of information
Material out of regulatory control (MORC)	Planning, preparedness, and response for nuclear security events	General
Material out of regulatory control (MORC)	Planning, preparedness, and response for nuclear security events	Maintenance, testing and calibration of equipment
Material out of regulatory control (MORC)	Planning, preparedness, and response for nuclear security events	Exercises and Drills
Material out of regulatory control (MORC)	Planning, preparedness, and response for nuclear security events	Crises management and communication
Material out of regulatory control (MORC)	Planning, preparedness, and response for nuclear security events	Mitigating or Minimizing Consequences
Material out of regulatory control (MORC)	Planning, preparedness, and response for nuclear security events	Major Public Events
Material out of regulatory control (MORC)	National Detection System/Measures	General
Material out of regulatory control (MORC)	National Detection System/Measures	Identification of Sources and Devices
Material out of regulatory control (MORC)	National Detection System/Measures	Border Controls
Material out of regulatory control (MORC)	National Detection System/Measures	Implementing Detection Architecture
Material out of regulatory control (MORC)	National Detection System/Measures	Alarm and Alert Assessment
Material out of regulatory control (MORC)	National Detection System/Measures	Deployment of detection instruments
Material out of regulatory control (MORC)	National Detection System/Measures	Designated points of exit and entry
Material out of regulatory control (MORC)	National Detection System/Measures	Medical surveillance
Material out of regulatory control (MORC)	National Detection System/Measures	Reporting material out of regulatory control
Material out of regulatory control (MORC)	National Detection System/Measures	Detection by Instruments or Information Alert

Material out of regulatory control (MORC)	National Response System/Measures	Nuclear Forensics
Material out of regulatory control (MORC)	National Response System/Measures	Locating and Recovering Missing or Stolen Nuclear Material
Material out of regulatory control (MORC)	National Response System/Measures	Notication of Nuclear Security Events
Material out of regulatory control (MORC)	National Response System/Measures	Radiological Crime Scene Management
Material out of regulatory control (MORC)	National Response System/Measures	Collection and handling of evidence
Material out of regulatory control (MORC)	National Response System/Measures	Implementing the National Response Plan
Material out of regulatory control (MORC)	Computer Security Measures	
Material out of regulatory control (MORC)	Measures Against the Insider Threat	
Material out of regulatory control (MORC)	Interface with Nuclear Safety	