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Quality Management System – Safety Standards and Security Guidance Development Section					
Knowledge and Content Management System, Feedback mechanism, NSS-OUI interface 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 Version 2.2 – 10 February 2017					

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A. INTRODUCTION

A.1. Background

The SPESS A section 2 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 Department publications and for their review/revision and subsequent publication as electronic version. It is designed to be applied for both the 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 and Nuclear Security Series publications by enhancing their user-friendliness and by providing tools for users to easily navigate within the series.

The main components are:

- A component 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.2. Objective

The objective of this manual is to describe in more details the main components of the NSS-OUI online user interface, 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 and how to use the resulting interface, including by documenting 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 publications, like safety reports and TECDOCs so as to benefit from the advanced search capability that it offers.

A.4. Structure

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

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

The section D addresses the methodology to introduce existing publications in the platform and in particular identify the individual “Chunks”, i.e. the parts that merit to be inserted as separate elements because they relate to different topics and the optimization process to enrich the search efficiency.

The section E covers the methodology to document, in addition to the text of the publication, the 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 F 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 D, E and F is to highlight those important aspects that are necessary for the knowledge and content management system, for the efficiency of the search function and for the user-friendliness of the electronic versions (html and others) of the publications available through the NSS-OUI interface. These sections do not provide detailed guidance on how to use the Fonto XML Editor. This is covered by other guidance material for, and dedicated training of, the Technical Officers.

The section G covers the use of the NSS-OUI interface to document any feedback received on the current set of publications, starting by identifying a number of sources of feedback. It then addresses the different ways of extracting and analyzing the feedback accumulated.

The section H covers the process management interface to support the revision, review and approval processes.

The section I 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.

B. MAIN CONCEPT AND BASIC FEATURES

B.1. General concept

The initial concept development was based on the recognition that, after fifty 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 establish 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 topical oriented revision process for several parts of several publications so as to maintain consistency for these topical relationships.

This resulted in the design of a content management system so as 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 and the corresponding revision of the set of subsequent guides demonstrated the feasibility of the overall approach and the experience of the establishment of networks based on the use of SharePoint 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 so as 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 had also requested the establishment of electronic version of the standards so as to enhance user-friendliness and therefore an electronic publication module was added to the design of the NSS-OUI interface with a functionality to access the publications through their title or number, including through a search in the publication titles and numbers.

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 so as 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 interface 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, and these may also not be accessible through the publications when they are published one after another. In this case also these can be documented in the NSS-OUI interface

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 so as 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.

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 interface, 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 so as to support both a publication specific revision process and a topical oriented revision approach.

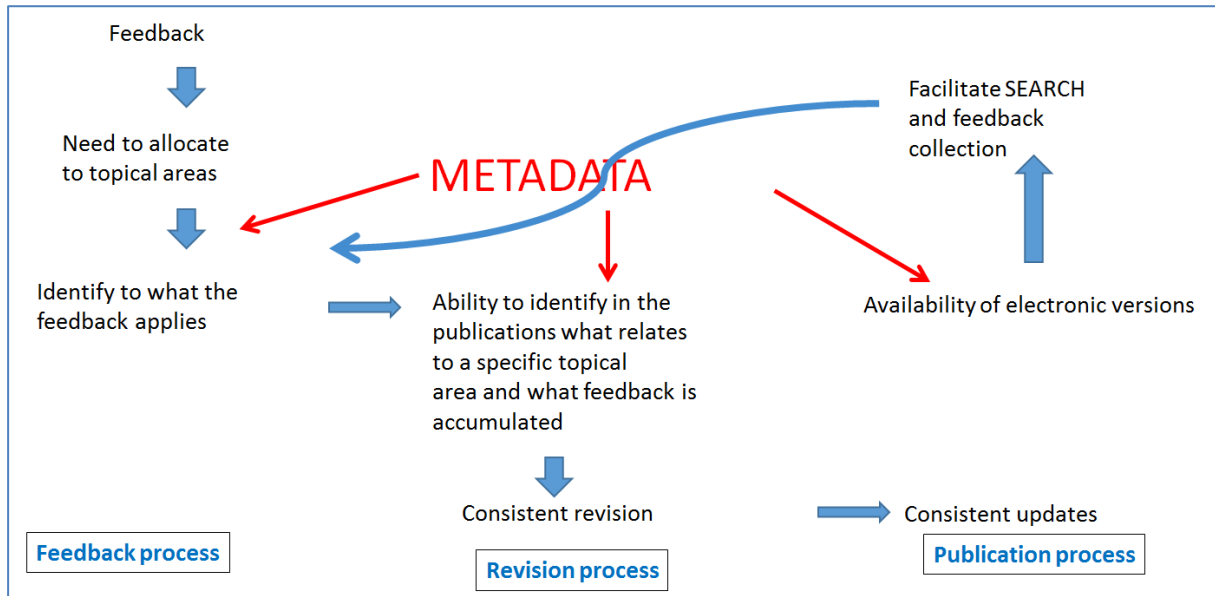
Three search modes are provided in addition to the two navigation modes. An advanced topical and contextual search is available to use the topical areas ontology and, as appropriate, the contextual ontologies to find the part of the standards that correspond to the selected criteria. In this case, the search results will provide an access to all the relevant parts, including where not explicit relationship was established. 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 so as to refine the search. 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. A full text search is also made available.

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 an harmonized and consistent use of references. This also includes a specific module for the defined terms in the glossaries with a possibility, in a later stage, to provide a link to the definitions from within the electronic publication for defined terms.

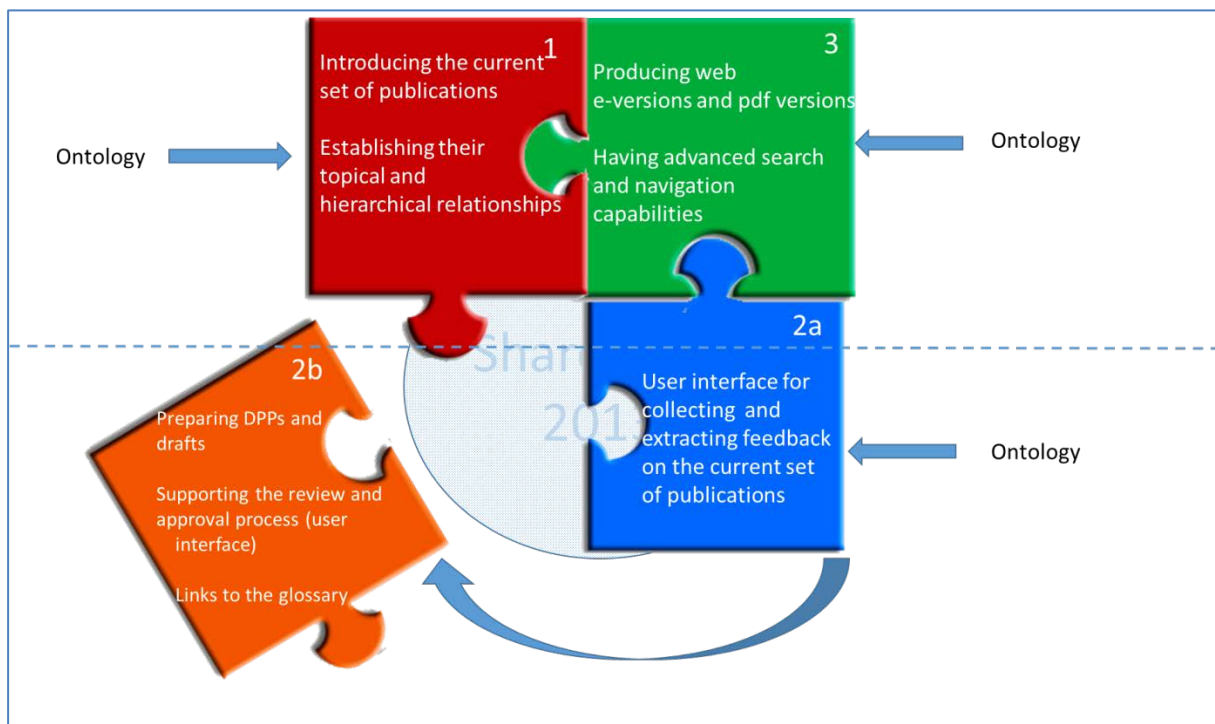
Finally, the design for the NSS-OUI interface provides for the following characteristics:

- Multi-format output possibilities (html, pdf and then Word, epub)

- Multi device access with responsive design: Desktop, Tablets, Smartphone
- Multi browser compatible: most popular browser are supported by the system



Overall conceptual representation



Overall infrastructure

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

For implementing a content and knowledge 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 the main topical areas were and therefore what the modular approach should be for the requirements.

Since the guides implement the requirements, a topical relationship is also de facto establish 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 than 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 interface, 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 the output. Thus the editor is used to characterize the content rather than the format.

This option allows the preparation of different kind 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 and thus in a harmonized manner.

Therefore, the editor used for the preparation of publications in the NSS-OUI interface includes features in order 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, bullet list, numbered list, reference items...). When publishing an output, the stylesheet then analyses these element 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.

More details on the language are provided in the Section D.1. here below.

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

When applying in the editor the two main elements as described in the section 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 are also established in most cases as individual elements, particularly if it is expected that the same table or the same figure might be re-used in another publication.

Two types of situations might happen as a result 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 but this is considered as a better option since these topical areas are probably highly interrelated if they are covered under the same heading in a publication. In this first case, the content 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 headings and sub-headings that in total address the same topical area. In that case they will be separated but the same set of topical area will be allocated to each individual component. The search on such a topical area will thus provide as a result the suite of these individual components.

As indicated here below in the section B.6., we also have situations where a complete publication is about one single topical area or the same set of topical areas. In that case, the characterization is not established for each individual component but at the publication's level.

B.5. Specific consideration for overarching requirements and overall recommendations

As indicated above, the access to the complete set of overarching requirements, with a search capability in the title and the statement does constitute an efficient mechanism to directly access the content of the safety requirements. A direct access to inside the requirements publication at the place of the selected overarching requirement is then provided, while opening the complete publication so as 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 a very effective mechanism for the users, the same concept is applied for the Nuclear Security Series by creating "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, 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 interface for searching either the overarching requirements or the overall recommendations.

B.6. General tagging approach

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

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. here below.

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.

The set of metadata can also evolve so as to incorporate feedback and update the ontologies as necessary with a mechanism to maintain the validity of existing tagging, even when the set of metadata is amended.

Topical tagging at the publication (called collection in NSS-OUI to indicate that an e-publication is a collection of chunks) 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 (so as to avoid the repetition in a search result).

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 area 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.

For the contextual tagging on the target audience, the criteria for tagging should not be who is interested by 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.7. Top-down development and implications for the cross-references

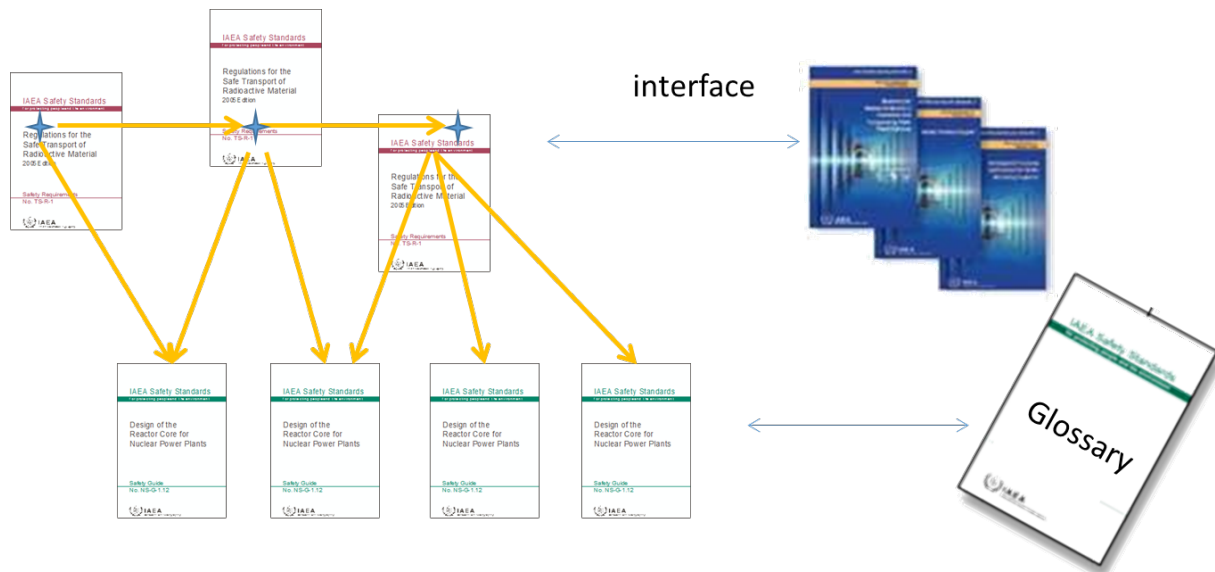
For both the Safety Standards Series and the Nuclear Security Series, a top-down development process is adopted. As a result, the Requirements or the Recommendations are generally developed before the associated guides. Therefore, unless for limited situations, the requirements and the recommendations 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 so as to document the explicit relationships that may be useful for the users. With a view to clearly differentiate however what is part of the official publication reproduced in the NSS-OUI interface 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 so as to provide the user with other publications that we recommend to consider, i.e. a “resource”. In the case of a resource, it is useful to use also a “Tip Note” so as to update the list of references with the one that have been superseded in the meantime.

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, either in the list of references or in the set of tip-notes so as 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.¹



Topical relationship – Hierarchical Relationship – Semantic Relationship

B.8. Explicit versus implicit relationships

The relationship documented as described above in the section B.7. and more specifically in Section E becomes an explicit relationship such that the user of the NSS-OUI interface will find these by using the navigation mode. The purpose is to establish those relationships that are meant important to help the user implementing the requirements or recommendations, either by referring to other important requirements or recommendation 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.6. and C will establish another, complementary, type of relationship, called implicit, since these can be accessed through the search functions but not necessarily through the navigation. Of course, all explicit relationship will also result in the corresponding tagging so that all explicit relationship can also be found through the search function.

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

¹ 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.

management system to update these parts as necessary in the future so as to maintain the consistency across the publications.

Using the search functionality will thus identify a set of implicit relationships. When appropriate and if it is considered that some of these are important, they can also be established as explicit by adding a corresponding tip-note in the relevant publications.

B.9. Versioning

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, 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 is added to identify the category. When a publication is revised a revision number is also added.

In NSS-OUI, the 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 identified version of a publication a revision is made, not in the text of the publication, but in the tip-notes of 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 text of these different versions are all similar. Only the additional information inserted in tip-notes or inserted as metadata can vary from one version to another.

The html addresses of an identified publication also remain stable, so that these can be bookmarked. When a new e-version is published on NSS-OUI, a new html file is generated with the number of that version, but the use of a previous bookmarked address will continue to be operational and will provide access to the latest available e-version.

B.10. Concepts and tools for the consistent and concomitant revision of a set of publications

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

- To ensure that the review and revision of the publications in the Safety Standards Series and the Nuclear Security Series is based on a systematic feedback collection and analysis process.
- To ensure that any revision of the publications or part of the 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 the technical consistency among the publications through a management as a complete Series rather than by individual management of individual publications.

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 topical oriented revision

process. In particular, 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 order 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 so as to support both a publication specific revision process and a topical oriented revision approach.

A tool is made available to generate table of comments and proposal 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 part 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 terminology “content” to cover what the current set of publications contains as text. The concept is to characterize the detailed content of the publications by a set of terms describing the topical areas they are addressing. The same set of topical areas will also be used to characterize any new information, particularly any feedback collected on the current publications so as to link this feedback with the current content. This set of topical areas, will then also be used for providing an advanced search capability so as to extract the content and information by topical areas and identify the different parts of the Series of publications covering the same topical area so as to organize their consistent revision where appropriate.

The concept of content management is extended to a broader concept of knowledge management, that covers the relationship between the concepts identified in the ontology (hierarchical or conceptual) but also 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. This results in three other ontologies that can also be used to characterize the content and as search criteria.

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

Another category of knowledge is the relationship between the publications, not necessarily explicitly covered by the list of references, particularly in a top-down manner. This 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 optimized, 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 the annex of SPESS A on the roadmap for the structure of the 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 taxonomy is not fundamentally different from the structure of the actual content, thus ensuring that the logic for the search function is consistent with the overall structure logic. The number of overarching requirements also makes that this can result in a manageable size for the taxonomy. Such a taxonomy is a concept based taxonomy and not simply a term based taxonomy (like a taxonomy based on the terms defined in the glossary) and is a more modern approach the establishment of a content and knowledge management system.

The taxonomy 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 sub-concept covering several overarching requirements areas 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 taxonomy where the second level already corresponds to a 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. 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, from GSR Part 1 and GSR Part 6 identify similar topical areas addressed with a different hierarchy:

Governmental, Legal and Regulatory Infrastructure for Safety	National policy and strategy	National policy and strategy for decommissioning
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In this case, the national policy and strategy for decommissioning is a sub-set 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 a subset.

Both do cover the same topic, but with a different hierarchy. The taxonomy resulting from a direct list of overarching requirement 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 taxonomy are therefore declared as equivalent in the ontology, such that searching for any of these two items would provide as a result both contents.

In some cases, this may be even slightly 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 Leadership and Management for Safety, 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 leadership and management requirements, because it provided the “lead” requirements and the one from the predisposal management of waste because it is contextually related. This means that the identification of equivalence is made with a directional features.

The documentation of these relationships in the taxonomy results in the establishment of a topical ontology.

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 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, NS-R-3, NS-R-4 and NS-R-5. In this case, 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 so as 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 so as 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 later on tag with the final topical areas every

single requirement and the associated text. The excel sheet also document the relationships between topical areas described here above (see picture next page and the complete ontology, including the mapping of the Safety Requirements is available at the back of this document).

For the safety guide, 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 specific areas for which there would be a benefit in further refining the ontology. The interface for the system administrator allows for this maintenance.

When inserting new guide into the NSS-OUI, it may happen that the topical areas they cover is not well reflected in the current ontology. If this is the case, it is possible to add new items in the ontology, but it is also advised then to establish a cross-link with one or more existing related items in order to establish a formal relationship with the requirement level. This is because the identification of an important new topic to be inserted may probably lead at some point to the establishment of a new specific overarching requirement.

[illegible]

C.2. Contextual ontology

In addition to the topical ontology, three more ontologies were developed so as to characterize the context: Target audience, type of facilities and activity, lifetime.

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	

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 term based definition, like “national policy and strategy for decommissioning” and a unique ID number, as displayed here below from the administrator interface to manage the ontologies.

The screenshot displays the 'GENERAL' tab of the ontology management interface. On the left is a 'TAXONOMY TERM STORE' with a tree structure. The selected term is 'National policy and strategy for decommissioning' under 'Safety and Security Topical Areas'. The main panel shows the following fields:

- National policy and strategy for decommissioning** (Term Name)
- 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**: English (Select a language of the labels for the term you would like to edit.)
- Description**: (Empty text area. Descriptions will help users know when to use this term, and to disambiguate amongst similar terms.)
- Default Label**: National policy and strategy for decommissioning (Enter one label as the default for this language.)
- Other Labels**: (Empty text area. Enter synonyms and abbreviations for this term. (You can enter a word or phrase per line.))
- 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 (A red circle highlights this field in the original image.)

Buttons for 'Save' and 'Cancel' are at the bottom right.

This makes that, in the future it is possible to rename the topical areas without affected the previous allocation, 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 GUID from the picture that corresponds to the topical area Governmental, Legal and Regulatory Framework / National Policy / 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-based ontology editor. On the left, a 'TAXONOMY TERM STORE' sidebar shows a hierarchical list of terms. The term 'National policy and strategy for decommissioning' is highlighted. On the right, the 'CUSTOM PROPERTIES' panel is active, showing details for the selected term. It includes a 'Shared Properties' section with a table containing one entry: 'Related Terms' with a UUID value. Below this is a 'Local Properties' section, which is currently empty. The interface includes search bars, expand/collapse icons, and 'Save' and 'Cancel' buttons at the bottom right.

Shared Property Name	Value
Related Terms	0dafb2e7-121e-4c23-81f7-6c2ae26edbc9

Local Property Name	Value
---------------------	-------

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”.

It is also possible to merge in the future some topical areas if it is felt that this was too much 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 characterize in the previous manner and re-categorize these with the new topical area description.

As indicated above, it is possible to add new items in the ontology, but in that case it is also advised to then establish a cross-relationship with one or more existing related items in order to establish a formal relationship with the requirement level. This is because the identification of an important new topic to be inserted may probably lead at some point to the establishment of a new specific overarching requirement.

D. INTRODUCTION OF THE VARIOUS PUBLICATIONS INTO THE PLATFORM

D.1. Language

For the establishment of 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 purpose of the project.

It includes the concept of topics, with different types of pre-established topics, like conceptual topics that correspond to the topical areas covered by the section C above, but also provides the opportunity to customize these topics.

The individual “topics”, called “chunks”, are therefore used to separate the different parts of a publication that address different topical areas or the different structural parts, like sections, sub-sections, annexes, appendices, tables and figures. The identification of the different kinds of topics therefore enables the specification, for each kind of topic, of how they should be displayed in the different output possibilities through the preparation of stylesheet. This indeed re-establishes the format aspect that is not required any more with the editor software and ensures harmonized formatting for all similar component of a publication. The separation from content and format also enables the generation of different types of output from the same content such as html versions, pdf versions, Word versions or e-pub versions.

The customization capability, implemented through the use of the FONTO XML web Editor, was very useful to create a new category of topic for the overarching requirements with a title and a description that correspond to the overarching requirements number, title and statement in bold. The same concept can be used for other publications, like the Nuclear Security Series, with the difference that, with the stylesheet, the corresponding titles and description would not be part of the actual publication but would still be searchable as metadata or through dedicated full text search.

Any publication is then the result of assembling the suite of individual chunks in a structured collection, thus re-building a complete publication, with a correct format, from its different components. This is the mapping feature of DITA.

It is also possible then to allocate metadata at the chunk level to characterize any individual chunk (for the topical characterization for example as a minimum) but also at the collection level and for the characterization of the context element, like the target audience or the type of facilities.

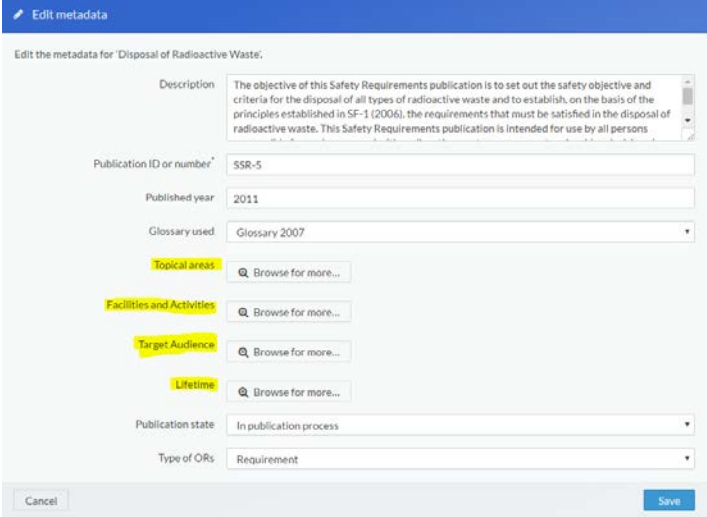
Another important feature of the DITA language is that it also handles relationships between chunks, even where they are in different publications, i.e. in different collections. This feature is a key enabler for documenting the explicit hierarchical and topical relationship between the different publications in the series, like documenting in a safety requirements what the relevant safety guides or part of safety guides are.

The DITA language also manages semantic relationship with specific tags for defined terms in glossaries.

² Organization for the Advancement of Structured Information Standards

D.2. Introducing Safety Requirements and Nuclear Security Recommendations

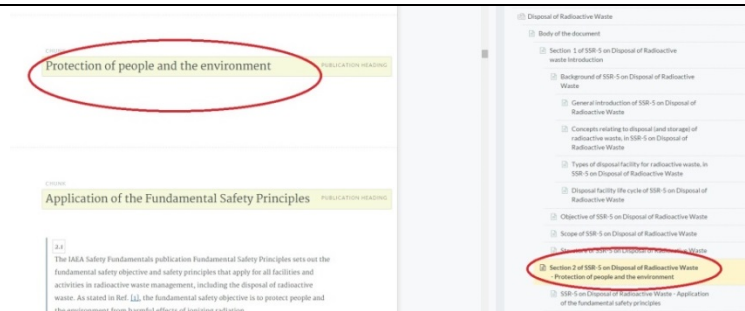
Creating the collection and indicating metadata such as the description and the name of the file (different from the title). Tagging at the collection level.

	<i>The title of the collection is the exact title as published</i> <i>The description can be a copy of the objective section of the publication or a relevant extract of that section. It will be used in the Browse by Publication mode to display more details when clicking on a title in the list of publications</i> <i>The collection purpose must be “static” (the other option is reserved for the Glossary)</i> <i>The publication number should be as published, indicating revisions where appropriate</i> <i>The collection type corresponds to the category of the publication in the Series</i> <i>The valid version of the glossary should be documented</i>
	<i>Topical tagging at the collection 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 (so as to avoid the repetition in a search result).</i> <i>Contextual tagging is necessary at the collection level when the topical tagging is also restricted to the collection level.</i> <i>See also here below some mixed type situations like SSG-13</i>

Creating chunks corresponding to the structure of the publication with headings.

Every time there is a heading in a publication, there is a need to create a chunk to introduce that part with the heading and, as appropriate the paragraphs below if they are part of the same chunk. If not, just the heading level is created without subsequent text, like in the example here below with the Key elements to be inserted when creating a chunk and the resulting display in the Editor:

- A chunk Heading is what will be displayed in the publication. It is thus the header as in the publication
- A chunk name is the file name for this chunk. It is recommended to well document what it is, for example by reflecting the publication number and the successive heading and sub-heading. Thus when we want to insert a cross-reference from one publication to another part of another publication, it is easier to find that part. Similarly, this is what will be displayed in the search results (not the chunk heading, but the chunk name)
- A description is complementary information. It can be as a minimum similar to the chunk name, but if it is not explicit enough to understand what the content is about, more details can be provided. This will be displayed as complementary information in the search results, when clicking on the displayed chunk name.

	On the left hand side, the title is the heading as in the publication: “Protection of people and the environment” But on the right hand side another title is given that will be the name of the chunk as displayed in a search result. It is therefore necessary to insert more than just the title so that the user may identify at least from which publication this chunk comes from. Here we used “SSR-5 Disposal of Radioactive Waste – Protection of people and the environment”
---	---

As this chunk is structural, with only a heading, it is no necessary to tag it with metadata.

The next chunk on Application of the Fundamental Safety Principles will then be tagged with topical and contextual metadata, as indicated here below:

Edit metadata

Edit the metadata for 'SSR-5 on Disposal of Radioactive Waste - Application of the fundamental safety principles'.

Description

Chunk type*

Chunk role*

Topical areas • Application of the fundamental safety principles

Facilities and Activities • Waste Disposal Facilities

Target Audience • Operators (licensee)

Lifetime • Siting/Site evaluation • Design

• Construction • Commissioning • Operation

• Closure and post closure

Major change ☐

It may happen that, for certain parts of a publication, a suite of paragraphs could indeed cover different topical areas. In this case, one may be tempted by splitting this suite in different chunks so as to tag these separately with each relevant topical metadata. But in practice, it is not necessary. It remains possible to keep these paragraphs in one chunk and tag with all the relevant topical metadata (because probably if they are together while discussing different subject this is because of the relationships between these subjects). Note nevertheless that even if this part was split in a succession of separate chunks, this would not affect the display of a search result since the display always open the whole publication at the place of the search result.

Similarly, when a suite of chunks do cover the same topical areas, although they are de facto separated in the dita file, it is not necessary to tag all of these with the same set of tags. It is enough to just tag the first of these chunks, or the immediate higher level chunk with the relevant set of tags.

In some instances, there are specific publications, like SSG-13 on Chemistry Programme for Water Cooled Nuclear Power Plants that are tagged essentially at the collection level, because the whole document covers one main topical area. This is the general approach as explained here above in the table in D.2. However in that case, there are some specific parts of the publications that cover other very specific subjects, like qualification and training or sampling for post-accident situations. In that case and in addition to general tagging at the collection level, it is recommended to also tag the first of the chunks that covers this very specific topic. When doing so, not only the topical tag should be inserted, but the contextual tagging made at the collection level should be propagated in the tagging of the specific chunks, so that a multi-criteria advanced search would remain operational.

Creating an Overarching Requirement or an Overall Recommendation chunks.

When creating an OR chunk for an overarching requirement or an NSS overall recommendation, select the chunk type Overarching requirements (this will be displayed in the text of safety requirements but not in the text of security recommendations)

The OR Heading should be as in the text for Safety Requirements

The OR statement should be the exact bold text for overarching requirements or, for security recommendations, a descriptive summary of that part of the recommendation

The OR chunk name Could be similar but with the publication number in front so as to differentiate the requirements 4 from different safety requirements in the file names

Metadata allocation example for that OR chunk, for both the topical ontology and the contextual ontologies

Note that the tagging technique is with the opposite logic than the search technique: a search by clicking a higher level tag would display everything that is tagged at that level and at any level below. Therefore the tagging should be made for that higher level but also for all the applicable lower levels.

D.3. Introducing Safety Guides or Nuclear Security Implementing Guides and Technical Guides

The introduction of Safety Guides or other publications is indeed essentially similar to the introduction of a Safety Requirements or a Security Recommendation. It starts by creating a collection and continues by creating structural and content chunks.

The main first element to consider is to decide how to split the guide into separate parts that relate to the separate topics.

As indicated above on the tagging technique, if a publication is related to a limited number of topics, it will then be only tagged at the collection level. Therefore, the method for splitting the publication into separate parts (chunks) simply consists in following the existing structure of the publication and using it to identify the successive parts.

If the publication addresses many different topical areas, then, like for the Safety Requirements or Nuclear Security Recommendations and in addition to the structural elements, it is necessary to identify those different parts that relate to different topics. The easiest way is to establish firstly the relationship with the above Safety Requirements or Nuclear Security Recommendations, identify those parts that support individual requirements/recommendations, create a chunk for each part and use the same tagging as the one used for the above requirement/recommendation.

If, like indicated here above, this could lead to creating chunk at a too low level, it is recommended to keep the relevant paragraphs together and then allocate to the chunk that includes all these paragraphs the set of topical areas they cover.

D.4. Introducing other publications

It is also possible with the NSS-OUI platform to insert other types of publications, like TECDOCs or Safety Reports. The essential benefit results in the fact that they would then be found through the advanced search capability. With a view to achieving this, it is not necessary to insert the whole text of the publication, but simply a short introduction followed by a hyperlink to the actual pdf file of the publication. This provides a full access to the publication. The only difference is that its content would not be searchable through the full text search functionality. But the effort in developing an advanced ontology results in a limited need for full text search, even for the Safety Standards and Nuclear Security Series publications.

This method consisting of inserting only an introduction complemented by a hyperlink to the pdf file was indeed used at the beginning of the establishment of the platform to provide an access to many publications without necessarily introducing immediately the whole text. With this approach, the platform offers a way to search many publications and not only the Safety Standards and the Nuclear Security Series. As the example below shows, it also offers a way to document in addition pertinent relationship (see section E)

SSR-6

Regulations for the Safe Transport of Radioactive Material 2012 Edition

1. Introduction

The complete text of the Safety Requirement **SSR-6** will be uploaded here later, together with the establishment of a list of main topical areas that will be made available in the browse mode by overarching requirement or main topical areas.

You may access [here](#) the publication **SSR-6 and corrigenda for page 7, 50, 53-54, 76, 109, 132, 134, 135, 145, 151-158, 159**

- i** **GSR Part 1 (Rev.1)** Governmental, Legal and Regulatory Framework for Safety
- GSR Part 2** on Leadership and Management for Safety
- GSR Part 3** Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards
- GSR Part 4 (Rev.1)** Safety Assessment for Facilities and Activities
- GSR-Part 7** Preparedness and Response for a Nuclear or Radiological Emergency
- SSG-26** Advisory Material for the IAEA Regulations for the Safe Transport of Radioactive Material
- SSG-33** Schedules of Provisions of the IAEA Regulations for the Safe Transport of Radioactive Material (2012 Edition)
- TS-G-1.4** The Management System for the Safe Transport of Radioactive Material
- TS-G-1.5** Compliance Assurance for the Safe Transport of Radioactive Material
- TS-G-1.3** Radiation Protection Programmes for the Transport of Radioactive Material
- TS-G-1.2** Planning and Preparing for Emergency Response to Transport Accidents Involving Radioactive Material

E. RELATIONSHIP DOCUMENTATION AND MAINTENANCE

E.1. Introducing explicit relationship between publications

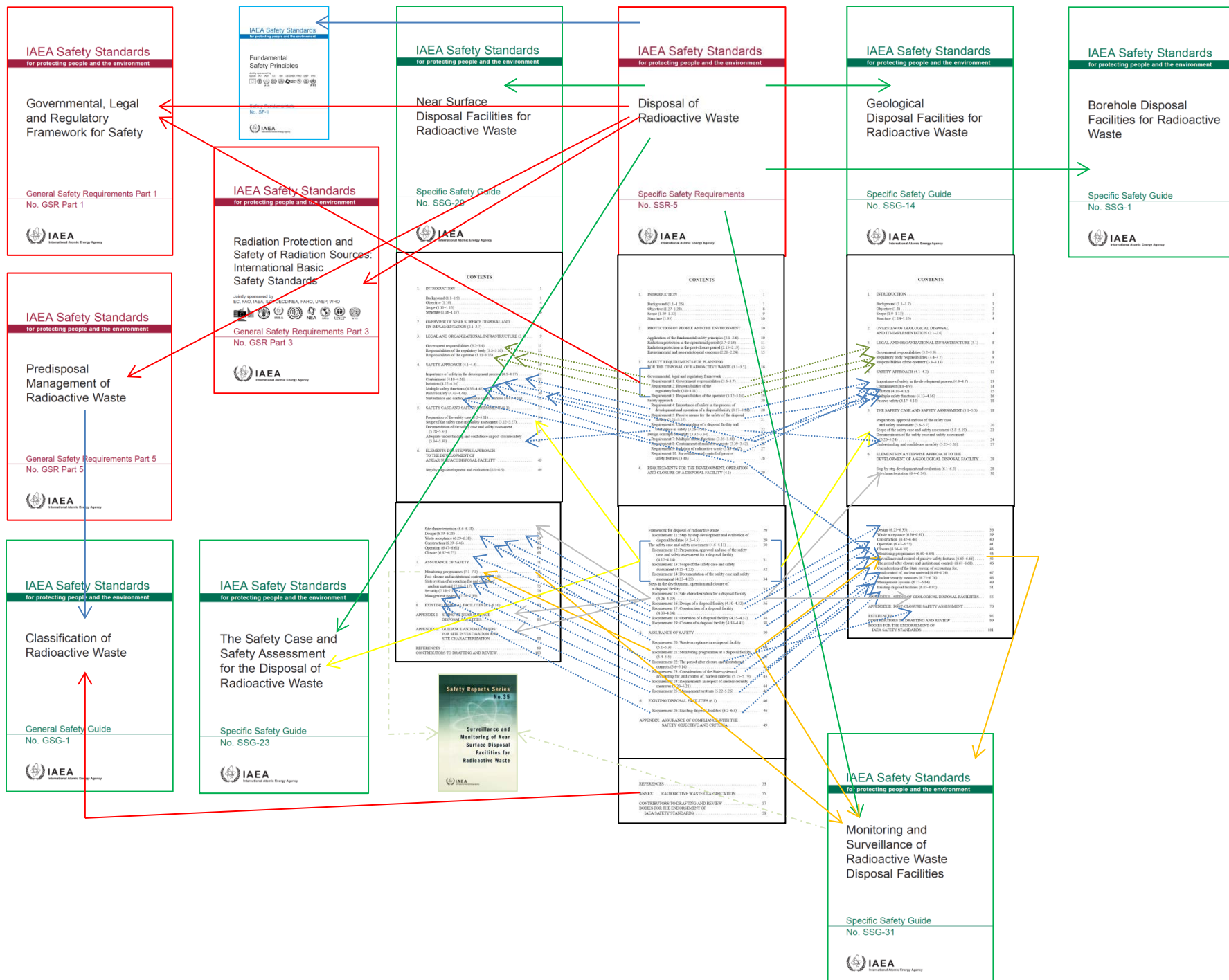
The figure here after provides an example of the different types of relationships that can be documented in the platform for one publication (SSR-5 as an example):

- At the publication level, from Safety Requirements to the Safety Fundamentals (for example 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. Other implicit relationships will have been de facto documented by the allocation of topical areas, making that the search would identify these relationships in addition to the explicit ones documented and immediately visible by the browse function of the system.

The list of references is introduced as in the publication but when some mentioned publications are superseded; it is also possible to use a tip note to indicate what the new relevant publications are.³

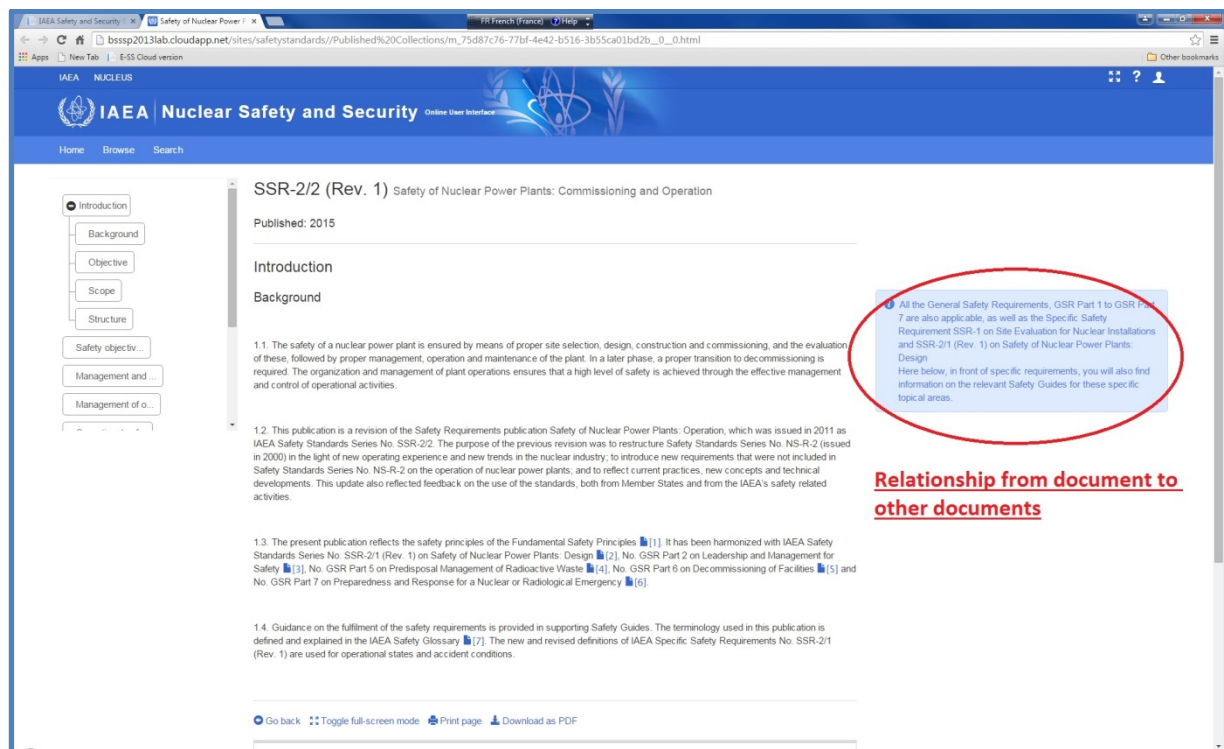
³ When a reference is added in one Safety Requirements to a Safety Guide, all references made to this guide can be found by full text search so that these references in the Safety Requirements can be later updated when this safety guide is revised. Moreover, with this same full text search (using quote like search “NS-G-1.1”) all references made to it can be found. Then this guide can be allocated the same set of topical tags as the requirements that refer to it.



Use of tip notes

Tip notes can be used to document all the above relationships. It is useful to insert a tip note right at the beginning of the introduction section to document all relationships at the collection level, i.e. from a publication to another publication. Then for the different chunks, a tip note can be inserted at the end of the chunk to document the relationships to other publications or to parts of other publications. Finally, a tip note can be inserted at the end of the chunk that includes the list of references so as to mention new relevant or superseded publications.

Examples of the uses of tip notes are provided in the pictures here below:



The screenshot displays the IAEA Nuclear Safety and Security Online User Interface. The main content area shows the document "SSR-2/2 (Rev. 1) Safety of Nuclear Power Plants: Commissioning and Operation", published in 2015. The left sidebar contains a navigation menu with sections like Introduction, Background, Objective, Scope, Structure, Safety objectives, Management and..., and Management of o... The main text area includes an Introduction and a Background section. A tip note is highlighted in a red circle, containing the following text:

All the General Safety Requirements, GSR Part 1 to GSR Part 7 are also applicable, as well as the Specific Safety Requirement SSR-1 on Site Evaluation for Nuclear Installations and SSR-2/1 (Rev. 1) on Safety of Nuclear Power Plants: Design. Here below, in front of specific requirements, you will also find information on the relevant Safety Guides for these specific topical areas.

Below the tip note, the text "Relationship from document to other documents" is written in red, underlined. At the bottom of the page, there are links for "Go back", "Toggle full-screen mode", "Print page", and "Download as PDF".

IAEA Safety and Security - Safety of Nuclear Power Plants - French (France) - Help

bsssp2013lab.cloudapp.net/sites/safetystandards/Published%20Collections/m_75d87c76-77bf-4e42-b516-3b55ca01bd2b_0_0.html#c_b6276d40-c02-4c97-a15d-e01a6adc730d_0_0

Introduction

Background

Objective

Scope

Structure

Safety objective

Management and ...

Management of o...

Operational saf...

Commissioning p...

Plant operation...

Maintenance, te...

Preparation for ...

References

unirradiated and irradiated fuel, for at least as long as the regulatory body requires in regulations.

Maintenance, testing, surveillance and inspection

Requirement 31: Maintenance, testing, surveillance and inspection programmes

The operating organization shall ensure that effective programmes for maintenance, testing, surveillance and inspection are established and implemented.

8.1. Maintenance, testing, surveillance and inspection programmes shall be established that include predictive, preventive and corrective maintenance activities. These maintenance activities shall be conducted to maintain availability during the service life of structures, systems and components by controlling degradation and preventing failures. In the event that failures do occur, maintenance activities shall be conducted to restore the capability of failed structures, systems and components to function within acceptance criteria.

8.2. The operating organization shall establish surveillance programmes for ensuring compliance with established operational limits and conditions and for detecting and correcting any abnormal condition before it can give rise to significant consequences for safety.

8.3. The operating organization shall develop procedures for all maintenance, testing, surveillance and inspection tasks. These procedures shall be prepared, reviewed, modified when required, validated, approved and distributed in accordance with procedures established under the management system.

8.4. Data on maintenance, testing, surveillance and inspection shall be recorded, stored and analysed for confirming that the operating performance is in accordance with the design intent and with requirements for the reliability and availability of equipment.

8.5. The frequency of maintenance, testing, surveillance and inspection of individual structures, systems and components shall be determined on the basis of:

- (a) The importance to safety of the structures, systems and components, with insights from probabilistic safety assessment taken into account;
- (b) Their reliability in, and availability for, operation;
- (c) Their assessed potential for degradation in operation and their ageing characteristics;
- (d) Operating experience;
- (e) Recommendations of vendors.

8.6. A comprehensive and structured approach to identifying failure scenarios shall be taken to ensure the proper management of maintenance activities, using methods of probabilistic safety analysis as appropriate.

8.7. New approaches that could result in significant changes to current strategies for maintenance, testing, surveillance and inspection shall be taken only after careful consideration of the implications for safety and after appropriate authorization, as required.

See also:
NS-G-2.6 Maintenance, Surveillance and In-Service Inspection in Nuclear Power Plants (2002)

Relationship from a chunk in a document to another document

IAEA Safety and Security - Disposal of Radioactive Waste - French (France) - Help

bsssp2013lab.cloudapp.net/sites/safetystandards/Published%20Collections/m_7eeb23f5-bdc4-4672-ad64-39821db04214_0_0.html#c_a11b8961-9294-44ab-a02b-c7b935a607e7_0_0

Introduction

Background

General

Concepts relat...

Types of dispos...

Disposal faci...

Objective

Scope

Structure

Protection of p...

Application of ...

Radiation Prote...

Radiation Prote...

Safety objectiv...

Criteria

Environmental a...

Safety Requirem...

Governmental, L...

Requirement 1: ...

Requirement 2: ...

Requirement 3: ...

Safety Approach

Dissemination of ...

3.5 The requirements in respect of the planning of disposal facilities for radioactive waste are set out under three headings for the governmental, legal and regulatory framework, the safety approach and the design concepts for safety.

Governmental, Legal and Regulatory Framework

Requirement 1: Governmental responsibilities

The government is required to establish and maintain an appropriate governmental, legal and regulatory framework for safety within which responsibilities shall be clearly allocated for disposal facilities for radioactive waste to be sited, designed, constructed, operated and closed. This shall include: confirmation at a national level of the need for disposal facilities of different types; specification of the steps in development and licensing of facilities of different types; and clear allocation of responsibilities, securing of financial and other resources, and provision of independent regulatory functions relating to a planned disposal facility.

3.6 This requirement derives from a principle established in the Fundamental Safety Principles (Ref. [1]), Principle 2). It is also stipulated under the terms of the Joint Convention [2]. Requirements for establishing a national system for radioactive waste management are established in Ref. [1] 8. A project for the disposal of radioactive waste, especially for the development of a facility for the disposal of high level and long lived radioactive waste, has to be given special consideration within this infrastructure because of the relatively long period of time necessary for the development of such facilities.

3.7 Matters that have to be considered include:

- (a) Defining the national policy for the long term management of radioactive waste of different types;
- (b) Setting clearly defined legal, technical and financial responsibilities for organizations that are to be involved in the development of facilities for radioactive waste management, including disposal facilities of all types;
- (c) Ensuring the adequacy and security of financial provisions for each disposal facility;
- (d) Defining the overall process for the development, operation and closure of disposal facilities, including the legal and regulatory requirements (e.g. licence conditions) at each step, and the processes for decision making and the involvement of interested parties;
- (e) Ensuring that the necessary scientific and technical expertise remains available both to the operator and for the support of independent regulatory reviews and other national review functions;
- (f) Defining legal, technical and financial responsibilities and, if necessary, providing for any institutional arrangements that are envisaged after closure, including monitoring and ensuring the nuclear security of different types of waste that have been disposed of.

Requirement 2: Responsibilities of the regulatory body

The regulatory body shall establish regulatory requirements for the development of different types of disposal facility for radioactive waste and shall set out the procedures for meeting the requirements for the various stages of the licensing process. It shall also set conditions for the development, operation and closure of each individual disposal facility and shall carry out such activities as are necessary to ensure that the conditions are met.

3.8 General standards for the protection of people and the environment are usually set out in national policy or in legislation. The regulatory body has to develop regulatory requirements specific to each type of disposal facility for radioactive waste, including each type that is envisaged, on the basis of national policy and with due regard to the safety objective and criteria set out in para. 2.15. The regulatory body has to provide guidance on

See also GSR Part 1 (Rev 1) on Governmental, Legal and Regulatory Framework for Safety

For Near Surface Disposal Facilities, please see also SSG-29, para. 3.2-3.4
For Geological Disposal Facilities, please see also SSG-14, para.3.2-3.3

Relationship from a chunk to another publication and to the relevant parts of the specific safety guides

See also GSR Part 1 (Rev 1) on Governmental, Legal and Regulatory Framework for Safety
For Near Surface Disposal Facilities, please see also SSG-29, para. 3.5-3.10
For Geological Disposal Facilities, please see also SSG-14, para.3.4-3.7

The screenshot shows a web browser window with the address bar displaying a URL from bsssp2013lab.cloudapp.net. The browser has multiple tabs open, including 'IAEA Safety and Security' and 'Disposal of Radioactive Waste'. The left sidebar contains a list of requirements, with 'Requirement 19' selected. The main content area is titled 'References' and lists 18 references. A red circle highlights a text box on the right side of the references, which contains the following text:

GS-R-3 is being superseded by GSR Part 2 on Leadership and Management for Safety. The objective of this publication is to establish requirements that apply Principle 3 of the Fundamental Safety Principles, in relation to establishing, maintaining and continuously improving leadership and management for safety, including a management system, and developing and supporting a strong safety culture, in the organization. GS-R-2 is now superseded by GSR Part 7 on Preparedness and Response for a Nuclear or Radiological Emergency. The publication establishes the requirements for an adequate level of preparedness and 22 response for a nuclear or radiological emergency. Their implementation is intended to mitigate the 23 consequences of a nuclear or radiological emergency. GSR Part 1 is now superseded by GSR Part 1 Rev 1. 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 sources to a nuclear power programme. Safety Series No. 115 is now superseded by GSR Part 3. This publication establishes requirements for the protection of people and the environment from harmful effects of ionizing radiation and for the safety of radiation sources. Safety Standards Series No. TS-R-1 is now superseded by SSR-6. The objective of these Regulations is to establish requirements that must be satisfied to ensure safety and to protect persons, property and the environment from the effects of radiation in the transport of radioactive material.

Below the references, there is a red text box with the following text:

Update on the list of references

Use of related links

Related links can also be introduced, like the tip notes, to document the relationship with other publications or to chunks in other publications. The difference in using related links is that these would then become hyperlinks, which implies the need for a strict management for the maintenance of these links. But since the browse by publication offers an easy way to find these other publications - simply by searching the publication number - it may not be needed to use these related links, except when the target is a large publication in which case it might be preferable to offer a link that will open that related publication directly at the right place.

An example is provided here below.

A hyperlink to inside the safety guides at the place dealing with the monitoring

Requirement 21: Monitoring programmes at a disposal facility

A programme of monitoring shall be carried out prior to, and during, the construction and operation of a disposal facility and after its closure, if this is part of the safety case. This programme shall be designed to collect and update information necessary for the purposes of protection and safety. Information shall be obtained to confirm the conditions necessary for the safety of workers and members of the public and protection of the environment during the period of operation of the facility. Monitoring shall also be carried out to confirm the absence of any conditions that could affect the safety of the facility after closure.

5.4 Monitoring has to be carried out at each step in the development and in the operation of a disposal facility. The purposes of the monitoring programme include:

- (a) Obtaining information for subsequent assessments;
- (b) Assurance of operational safety;
- (c) Assurance that conditions at the facility for operation are consistent with the safety assessment;
- (d) Confirmation that conditions are consistent with safety after closure.

Guidance is provided in Ref. [20]. Monitoring programmes have to be designed and implemented so as not to reduce the overall level of safety of the facility after closure.

5.5 A discussion of monitoring relating to the safety of geological disposal facilities after closure is given in an IAEA TECDOC. Plans for monitoring with the aim of providing assurance of safety after closure have to be drawn up before the construction of a geological disposal facility to indicate possible monitoring strategies. However, plans have to remain flexible and, if necessary, they will have to be revised and updated during the development and operation of the facility.

Requirement 22: The period after closure and institutional controls

Plans shall be prepared for the period after closure to address institutional control and the arrangements for maintaining the availability of information on the disposal facility. These plans shall be consistent with passive safety features and shall form part of the safety case on which authorization to close the facility is granted.

5.6 The long term safety of a disposal facility for radioactive waste has not to be dependent on active institutional control. Even the violation of passive safety features cannot give rise to the criteria for intervention being exceeded. Additionally, the safety of the disposal facility has not to be dependent solely on institutional controls. Institutional controls cannot be the sole or main component of safety for a near surface disposal facility. The ability of the institutional controls to provide the contributions to safety envisaged in the safety case has to be demonstrated and justified in the

External Links

- SSG-29 Safety Guide on Near Surface Disposal Facilities
- SSG-14 Safety Guide on Geological Disposal Facilities

For Near Surface Disposal Facilities, please see also SSG-29, para. 7.1-7.5
For Geological Disposal Facilities, please see also SSG-14, para. 6.60-6.64

See also SSG-31, Safety Guide on Monitoring and Surveillance of Radioactive Waste Disposal Facilities (2014)

For Near Surface Disposal Facilities, please see also SSG-29, para. 7.6-7.15
For Geological Disposal Facilities, please see also SSG-14, para. 6.67-6.68 and Appendix II

Use of hyperlinks

Hyperlinks can be introduced for publications outside the NS-OUI platform, like Safety Reports and TECDOCs

Monitoring programmes

7.1. Monitoring means continuous or periodic observations and measurements of engineering, environmental and radiologic parameters important to safety. Monitoring should begin as soon as possible in the development of the disposal facility and, in any case, prior to the construction of the disposal facility to establish background levels and to assist in site characterization. The monitoring programme provides input to safety assessments, the continuing assurance of operational safety of the facility, and the subsequent confirmation that actual conditions are consistent with the assumptions made for post-closure safety. Comprehensive guidance on the monitoring of radioactive waste disposal facilities is provided in IAEA Safety Standards Series No. 31, Monitoring and Surveillance of Radioactive Waste Disposal Facilities [23].

7.2. The monitoring programme should be defined prior to construction and in coordination with development of the safety case. A baseline survey of the site, including characteristics of the host environment, should be conducted before commencing construction activities. The monitoring programme should be revised periodically to reflect new information gained during construction, operation and closure.

7.3. The monitoring programme should define monitoring methods (e.g. sampling of soil, vegetation, water and air), measurement techniques, requirements, limits and tolerances, monitoring and measuring frequencies and reporting requirements, including the retention of monitoring and measurement results.

7.4. The programme of monitoring should be included as part of the safety case and should be refined with each revision of the safety case. As such, the monitoring programme should be made subject to audit and independent verification by the regulatory body. During the operational period, the monitoring programme should be used to demonstrate compliance with the regulatory requirements and licence conditions for operation, including compliance with safety requirements for environmental and radiological protection [3]. Technical and scientific data obtained from the results of monitoring and measurement may also be used to improve the assumptions and models for safety assessments.

7.5. For the post-closure period, the near surface disposal facility should not require or rely on a post-closure monitoring programme to provide assurance of safety. Post-closure monitoring may be performed to provide public assurance, if required, by the government or the regulatory body, but should not compromise the safety functions of the facility. Monitoring for non-radiological contaminants, which may be of concern, may also be necessary. The operator of the facility should consider such contaminants when designing its monitoring programme.

Post-closure and institutional controls

7.6. Institutional controls following closure should be considered as a means of providing additional assurance of the safety of the disposal facility. Institutional controls may contribute to safety by preventing or reducing the likelihood of human actions that could inadvertently interfere with the waste or degrade the safety features of the disposal system. Institutional controls may also contribute to increasing public acceptability of a near surface disposal facility.

7.7. Paragraph 5.6 of SSR-6 [4] states that: "The long term safety of a disposal facility for radioactive waste has not to be dependent on active institutional control." However, the radionuclide inventory in a near surface disposal facility may be such that institutional control needs to be

External Links

- See also Safety Report Series No. 35

See also SSG-31, Safety Guide on Monitoring and Surveillance of Radioactive Waste Disposal Facilities

Hyperlink to a relevant Safety Report

E.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 previous 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 “information note”. It is then possible to update all these relationship information in order to indicate that this is now superseded, in the example given, 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 publication 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 relationship 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 relationship, 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 DSnumber 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.

F. INTRODUCTION OF THE GLOSSARY AND IDENTIFICATION OF DEFINED TERMS

Will be developed later after more experience and feedback.

G. FEEDBACK COLLECTION AND ANALYSIS

The purpose of this function is to have a systematic 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:

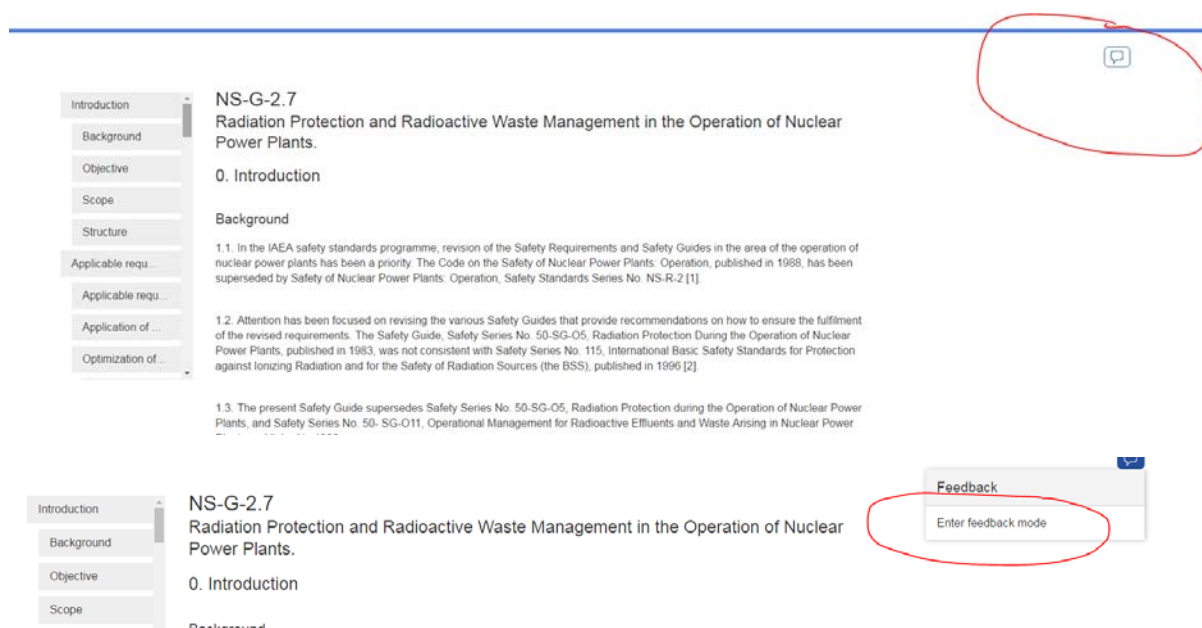
- Safety review missions
- Committees meetings
- Technical Cooperation activities
- Incident reporting systems
- Networks activities

All Technical Officers in the NS Department will have access to the feedback introduction function 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 Commission on Safety Standards will 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 publication.

When one access a publication using the “Browse Publications” mode and open a specific publication, a new window is made available on the right hand side of the display of that publication, as shown in the picture here below.



When clicking on “Enter feedback mode”, several options will be made available:

- Entering a general comment applicable to the whole publication

The screenshot shows the top of a document titled "GSR Part 1 (Rev. 1)" with the subtitle "Governmental, Legal and Regulatory Framework for Safety" and "Published:2016". A yellow box labeled "Add general feedback" with a "Comment" button is overlaid on the document content. The document content includes sections for "Background" and "Objective" with numbered paragraphs. On the right, a "Giving feedback" sidebar is visible, indicating the user is in feedback mode and listing options for feedback: the publication in general, section headings, and individual blocks of content. An "Exit feedback mode" button is at the bottom of the sidebar.

- Entering a comment on a whole section
- Entering a comment or a proposal on a specific paragraph

This screenshot shows the same document as the previous one, but with a feedback box for a specific paragraph. The "Add feedback" box now includes both "Comment" and "Proposal" buttons. The first paragraph under "Background" is highlighted in yellow. The "Giving feedback" sidebar on the right remains the same, showing the user is in feedback mode and providing options for feedback.

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 made (deletion strikethrough in red and addition in green). A reason for the proposed change is then requested, but remains optional. Then the button “save” needs to be clicked to save the proposal. By clicking again on the paragraph icon, you may access the “+” button to insert comments on other parts.

After inserting a comment or proposal on a whole publication, section or paragraph, it can be saved. In this case it is not submitted yet but stays visible for the commenter and allows the option of providing further comments or modifying an existing comment or proposal before submitting these.

Note that it is possible to provide several comments on the same part. The number of comments will then appear with the “+” button

When the ‘submit’ button is clicked, all inserted and saved comments are submitted to the IAEA.

As shown in the picture below, you may see the total number of comments on the top of the page, and also, for each part, the total number of individual comments.

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

- Regulatory Body
- of Nuclear Facilities by the Regulatory Body
- Nuclear Facilities and Enforcement by the Regulatory Body
- Regulating Nuclear Facilities
- ar Installations
- iation Sources
- ioactive Discharges to the Environment
- ulatory Control upon the Termination of Practices
- structure for a Nuclear Power Programme

he use of radiation sources is of great importance for the protection of people —
ie environment in those States authorizing their operation or use, and also in other

establish international consensus requirements that apply the fundamental safety
established in the Safety Fundamentals [1].



When the ‘submit’ button is clicked, the corresponding comment or proposal is submitted to the IAEA. Access to this “submit” function for a comment or a proposal already saved resumes when selecting the comment icon and then selecting “draft”, which then allow either to submit it directly or to modify it before submitting it. It is then requested to confirm the submission.

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

- 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 so as 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.

An interface is then offered in the “Work area” of the NSS-OUI Platform to retrieve all feedback accumulated either for a specific publication, or for a specific topical area.



A technical officer of a particular publication will be able to generate a cumulative ‘Comment Resolution Table’ with all comments and proposals retrieved.

IAEA Nuclear Safety and Security Online User Interface	
Comment Resolution Table for Out-of-Process Feedback	
Publication number:	NS-G-2.7
Publication title:	Radiation Protection and Radioactive Waste Management in the Operation of Nuclear Power Plants
Publication version:	5.0
Report creation date:	2016-10-17 07:47
Report created by:	Nuclear Safety and Security - Online User Interface
Page Break	

Statistics
Number of Comments
94

Topical area(s)	Reviewer	Date	Type	Location	Feedback	Reason	Remarks by TO
					effluents, frequency of unmonitored releases to the environment		
	JEANNIN, Bernard	2016-09-13 13:25	comment	Para 3.21 Details of monitoring programmes for...	Consider to replace this para with: Information concerning the radiation or contamination levels and the other relevant information across all the Plant should be represented in the same units, which are well known and understandable to the plant personnel. The use of the international standardized units e.g. Sv, Bq... should be preferred.	To get rid of the para: the guides have changed and the new application developed (NSS-OUI) has search capacity. To add a new recommendation: There are observations during the OSART reviews that at some nuclear power plants RP-related information is presented in different units (milli-rem, micro-Sv, Bq, etc.,)	
	JEANNIN, Bernard	2016-09-20	comment	[List]; 3.19. Three types of workplace	Consider to add a new para after 3.19		

H. PROCESS MANAGEMENT

This section will be developed further after a pilot exercise.

I. RESPONSIBILITIES AND ALLOCATION OF RIGHTS

This section will also be developed further after more feedback from the first operation of the Platform.

One first important element to indicate here is that the management and maintenance of the set of metadata will be ensured by the Safety Standards and Security Guidance Development Section with proposal that can be made by the Technical Officers or by stakeholder when using the search capabilities.

In the same manner the allocation of metadata at the collection level and at the chunk level will also be carried out by the Safety Standards and Security Guidance Development Section as it is important for the efficiency of the platform that these activities are carried out in a harmonized manner. In the future, after more experience, it could be proposed by the Technical Officers and then reviewed before publication by the Safety Standards and Security Guidance Development Section, like for the Technical Editorial Review of the text of the drafts.

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	