GUIDELINES FOR DRAFTING

IAEA SAFETY STANDARDS

Manual for the application of SPESS

Version 1 – 18 November 2010

These instructions provide guidance to Agency technical officers, Agency staff and external drafters on the structure, content and style of IAEA Safety Standards.


Section 1 sets out general information about Safety Requirements and Safety Guides. Aspects of the style and structure of a safety standard are provided in Section 2. A drafting checklist is included as Section 3. Section 4 provides a flow chart of typical tasks of the technical officer in preparing the first draft of a safety standard.
1. GENERAL INFORMATION

The Agency is the corporate author (in some cases, jointly with other international organizations) and is the publisher for all IAEA Safety Standards Series publications. Agency staff, Agency technical officers and external drafters, in developing Safety Standards Series publications, assign copyrights to the Agency.

The safety standards are normative texts that establish a comprehensive basis for the proper protection of people and the environment against radiation risks. As such, the standards have to be coherent, consistent and uniform in style.

The technical content of safety standards must be of the requisite quality and informational value. The text should be drafted consistently with the intended category in the Safety Standards Series. If sections are drafted by different contributors, differences in style or approach and overlaps or inconsistencies should be eliminated.

Safety standards represent the consensus of IAEA Member States and as such should be free of bias towards policies or practices of particular States, and should not be a mechanism for disseminating the views of individual outside experts.

Requirements on or recommendations to the IAEA Secretariat are policy matters and are not to be included in the text of safety standards.

The text of safety standards should not duplicate extended passages from other safety standards. Instead, a text cross-reference should be made to the original source with a paragraph number.

Otherwise, reference should be made as appropriate to relevant Agency publications and publications of other international organizations. In general, Safety Requirements should not cite TECDOCs. Safety Guides should not reference TECDOCs that present material of a tentative nature or in a provisional or preliminary form. Agency documentation not bearing the IAEA logo (e.g. working material) is not to be referenced. Caution should be exercised in making reference to publications of individual, national bodies.

Words should be used with the meanings assigned to them in the latest edition of the IAEA Safety Glossary (see http://www-ns.iaea.org/standards/safety-glossary.asp) and otherwise with the spellings and meanings assigned to them in the latest edition of The Concise Oxford Dictionary. Specialized terms and concepts should be explained in sufficient detail for all users. See SPESS Section 2 Part J for more detail.

SAFETY REQUIREMENTS

Publications in the Safety Requirements category establish the international consensus requirements for safety. The requirements are governed by the concepts, principles and objectives of the Safety Fundamentals. Objectives and principles set out in the Safety Fundamentals should only appear in Safety Requirements publications as direct verbatim quotations or citations, where necessary, with a paragraph reference to the original.

The requirements established by the standards, both numbered ‘overarching’ requirements in bold, with titles, and other requirements, are expressed as ‘shall’ statements. A Safety Requirements publication should consist as far as possible of ‘shall’ statements, accompanied by the minimum amount of explanation and/or comment necessary, to enable them to be incorporated into national laws and regulations.

A ‘shall’ statement should indicate who is responsible for fulfilling it, i.e. its subject should be explicit or clearly implied. In particular, passive ‘shall’ statements without a subject — ‘X, Y and Z shall be done’ — should be used with care.

Particular care is needed where a shall statement is qualified in any way, e.g. as in “shall… as necessary” or “shall… or…”, to make the meaning clear.
Publications in the Safety Requirements category should not present recommendations on, or explanations of, how to meet the requirements. ‘Should’ and ‘must’ statements should not be used. ‘May’ should be avoided as far as possible, as it has one meaning expressing authority or permission, and another meaning expressing possibility. If there is any danger of ambiguity, an alternative way of expressing the point should be found. The term ‘may not’ is especially ambiguous, and should be avoided.

The term ‘requirement’, and any other derivative of the verb ‘to require’, should be used only when referring to Safety Requirements or legal requirements (as, for example, in “as required by national law” or “a requirement of the regulatory body”).

If a requirement already established in a Safety Requirements publication needs to be restated in another standard, this may be done by quoting directly, using quotation marks, or by quoting indirectly in the form ‘it is required that…’ or ‘[subject] is required to…’, giving a reference and a paragraph number for the original requirement.

Requirements should be clear, concise and precise. In particular, variety of expression may be a source of ambiguity. If the same meaning is intended, the same word or expression should be used. If similar (but not identical) words or terms are used to convey differences in meaning, then these differences should be clearly explained.

SAFETY GUIDES

Safety Requirements publications are supplemented by Safety Guides, which can be used in developing national regulatory guides.

Safety Guides present international consensus recommendations — expressed as ‘should’ statements — of effective measures to ensure the fulfilment of safety requirements. The meaning is that it is necessary to take the measures stated (or equivalent alternative measures) to comply with the requirements. The recommendations may be of actions to be taken, conditions to be applied or procedures to be followed.

Principles and objectives and ‘shall’ statements should not appear in Safety Guides except as direct citations of Safety Fundamentals or Safety Requirements publications, if necessary. In particular, a ‘shall’ statement from a Safety Requirements publication should never be paraphrased as a ‘should’ statement in a Safety Guide.

To the extent possible, the main text of a Safety Guide should consist of recommendations—‘should’ statements. There is no need to justify or to make a case for the recommendations.

The writing style of Safety Guides may be less formal than that of Safety Requirements. In particular, they may contain explanatory and background information in annexes, if this is considered necessary for the interpretation of the recommendations.
2. MANUSCRIPT PREPARATION FOR THE SAFETY STANDARDS SERIES

1. Writing
   - Aim in drafting for clarity and conciseness;
   - Pay careful attention to the logical sequence of the text;
   - Ensure consistency of expression throughout the text, and with other safety standards;
   - Avoid jargon;
   - Avoid duplication;
   - Use short sentences and paragraphs, in preference to long.

2. Structure
   The title should be explicit, accurate and consistent with the category and scope of the standard and with related standards in the same application area.

   Each standard includes the same generic Foreword, followed by the same generic rationale for the IAEA safety standards.

   Standards jointly sponsored with other international organizations additionally include a specific Preface prepared by the technical officer to explain the circumstances of the joint sponsorship and to set it in the context of the Agency’s programme and related standards (with reference to, e.g., decisions of the IAEA Board of Governors or the General Conference). Acknowledgements may be made in a final paragraph to any bodies that provided financial or organizational assistance, for example. No acknowledgements should be made to the chairpersons of meetings, consultants or Agency officers.

   Section 1, Introduction, of each publication sets each standard in context within the Safety Standards Series and explains its purpose under the headings Background, Objective, Scope and Structure. Section 1 is an introduction to the publication and not the subject area. It must be consistent with the rest of the main text. It should be brief; however, it may expand on the justification for and purpose of the standard and may explain the standard in greater detail in the context of the Agency’s programme, the Safety Standards Series and other publications, and should indicate any standards the present standard supersedes.

   The ‘body text’ comprises Section 1 and the other numbered sections starting with Section 2, which present the primary technical content of the standard.

   Material for which there is no appropriate place in the body text (e.g. more detailed material that is subsidiary to or separate from the body text, is included in support of statements in the body text, or describes methods of calculation, experimental procedures or limits and conditions) may be presented in appendices or annexes.

   An appendix is considered to form an integral part of the standard. Material in an appendix is part of the ‘main text’ of the standard: it has the same status as the body text and the IAEA assumes authorship of it.

   Annexes and footnotes to the main text are used to provide practical examples or additional information or explanation. Annexes (and footnotes) are not an integral part of the standard, and may not contain requirements or recommendations. Annex material published by the IAEA is not necessarily issued under its authorship; material published in standards that is under other authorship may be generalized as necessary and presented in annexes.

   In case of doubt as to structure and layout, technical officers and external drafters should consult a recently issued safety standard of the same category (Safety Requirements or Safety Guide) during the development of any new safety standard.
3. **Word processing**

- Use the standard front cover page with status box (available at P:\Safety Standards\Front page for draft standards);
- There is no template for standards. Keep formatting as simple as possible as all standards are typeset:
  - Set the line width to 16 cm and the font to Times New Roman 11 pt;
  - Number pages at the bottom alternating, left for even pages, right for odd ones;
  - Use margins 2.5 cm left, right and bottom, 1.8 cm top;
  - Line spacing should be 1½;
  - Paragraph formatting should include 6 points above and below each paragraph;
- Use Word’s features for automatic generation of the table of contents and footnotes;
- Don’t use automatic paragraph numbering or automatic creation of reference lists;
- Spell ‘-ize’ endings in standard British English: -ization, -ize, -izing;
- Use ‘smart quotes’: single quotes for special uses of words, double quotes for actual quotations;
- Avoid using abbreviations. If abbreviations have to be included, the terms should be written out in full on first use. A list may be supplied at the end of the manuscript if this would facilitate the user’s understanding of the text;
- Element abbreviations such as $^{240}\text{Pu}$ should be used in text; $^{240}\text{Pu}$ should be used in tables or footnotes, where superscripts would be too small to read;
- Run the spellchecker.

4. **Enumeration**

Headings and subheadings should be generated using the Style facility in Word, should accurately describe the contents of the individual sections and subsections and should show the logical development of the text. Successive sections and paragraphs should be logically related. The hierarchy of headings is shown below:

1. **FIRST ORDER HEADING, BOLD UPPER CASE, CENTRED, NUMBERED**

SECOND ORDER HEADING, UPPER CASE, FLUSH LEFT

**Third order heading, bold sentence case, flush left**

*Fourth order heading, italic sentence case, flush left*

The table of contents should list the first, second and third order headings. (See IAEA Style Manual, pp. 21, 22.) Each paragraph in the text is to be numbered. Paragraphs are normally numbered consecutively with Arabic numerals according to the section in which they fall. For example, the paragraphs in Section 2 are numbered ‘2.1.’, ‘2.2.’, ‘2.3.’, etc. If the manuscript includes a single appendix, the paragraphs of the appendix are numbered ‘A.1.’, ‘A.2.’, ‘A.3.’, etc., with points. If the manuscript includes several annexes, the paragraphs in Annex III are numbered ‘III-1.’, ‘III-2.’, ‘III-3.’, etc., with hyphens. (See IAEA Style Manual, pp. 26, 27.) New pages should be started for the following: contents; Section 1; appendices; references; annexes; contributors to drafting and review.

5. **Tables**

(See IAEA Style Manual, pp. 69–73.)

- Ensure written permission has been obtained from the respective copyright holders to reproduce tables from other publications;
- Table headings should be accurate and adequate, and should be set above the table in upper case, e.g. TABLE 3. FOUNDATIONS OF THE......;
- Number tables in sequence through the main text including the appendices using Arabic numerals; number tables in annexes as I-1, I-2, etc.;
– Ensure that the table is no larger than 16 cm × 25 cm (including title): tables may be continued from page to page;
– Tables should be set up using the table or columns function in Word;
– Footnotes to tables are separate from footnotes to the main text and should be indicated by lower case letters;
– Use horizontal lines between the title and the beginning of the table, between the column headings and the column contents, and at the end of the table (see the example below).

**TABLE 1.** δ¹⁸O VALUES (‰) OF GROUNDWATER FROM DIFFERENT PERIODS AND LOCALITIES

<table>
<thead>
<tr>
<th>Locality</th>
<th>Elevation (m)</th>
<th>Holocene period</th>
<th>Minchin phase</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chaco Boreal</td>
<td>500</td>
<td>−5.2 ± 0.1</td>
<td>−7.1 ± 0.2</td>
<td>1.9</td>
</tr>
<tr>
<td>Foothills of the Andes</td>
<td>1500</td>
<td>−7.5 ± 0.2</td>
<td>−9.2 ± 0.3</td>
<td>1.7</td>
</tr>
<tr>
<td>Pilcomayo River</td>
<td>1900</td>
<td>−8.2 ± 0.2</td>
<td>−10.2 ± 0.2</td>
<td>2.0</td>
</tr>
</tbody>
</table>

6. **Figures**
(See IAEA Style Manual, pp. 77–82.)

– Ensure written permission has been obtained from the respective copyright holders to reproduce figures from other publications;
– Figure captions should be accurate and adequate and should be set beneath the figure in italics, e.g. **FIG. 1. Former population...**;
– Number figures in sequence through the main text including the appendices using Arabic numerals; number figures in annexes as I-1, I-2, etc.;
– Figures should be no larger than 16 × 25 cm (including caption);
– Consideration should be given to the legibility of figures when reduced to the size of the published page (generally 12 cm × 19 cm). Detail that will not reproduce clearly (e.g. plotted symbols and fine shading) should be omitted;
– For labelling on figures, use sans serif font (e.g. Arial, Helvetica) 8 point; capitalize the first letter of labels;
– Label axes with name of quantity, a comma and the quantity symbol if any, and the units in parentheses: e.g. Activity, A (10¹² Bq).

Information on the use of computer generated graphics should be obtained directly from MTCD Publishing Section. If it is not possible to provide pictures in electronic form, high quality originals should be provided.

7. **Numbers and units of measurement**

– Use the conventional SI units and symbols. SI units are summarized in Appendix A of the IAEA Style Manual;
– Use proper scientific notation 6.023 × 10²³ m/s — a multiplication sign (the Word symbol ×), not a raised dot or a space, between the numeral and the power of 10;
– In numbers of five digits of more, use spaces (not commas) between groups of three digits, counting left from decimal point: 10 000 years, 115 000 kBq/m².

8. **References**

References should be listed (headed REFERENCES) after any appendices but before any annexes, for all the main text including the appendices, and should be keyed to the text by numbers in
square brackets in the order in which they are first mentioned. References to annexes are listed separately at the end of each annex. References are Arabic numbered (1, 2, 3,...) in the order of their first mention. Reference numbers should be typed in square brackets, e.g. [1]. (See IAEA Style Manual, pp. 51–62.)

9. **List of contributors to drafting and review**

A single alphabetical list should be provided of the main contributors to drafting and review, together with their organizational affiliation and country. The list should be kept to a necessary minimum by restricting it to significant contributors only. The names of IAEA technical officers who contributed significantly should be included as for all other contributors. Care should be taken with the names and initials of participants and their affiliations and countries. Information on technical/consultants’ meetings held should not be included.


3. **DRAFTING CHECKLIST**

1. **Writing**
   - Verify that the content is correct and of the requisite quality and fitness for purpose.

2. **Structure**
   - Follow the proper structure for the safety standard (check a recently issued standard);
   - Ensure that Section 1 is a brief introduction to the publication itself (comprising the four subsections Background, Objective, Scope and Structure) rather than the subject;
   - Under ‘Background’, provide information on related and superseded IAEA publications.

3. **Word processing**
   - Use the MS Word automatic generation of table of contents and footnotes;
   - Set the font to Times New Roman 11 pt and the line spacing to 1½;
   - Run the spellchecker.

4. **Enumeration**
   - Follow the standard heading style (check a recently issued standard).

5 & 6. **Tables and figures**
   - Table headings should be set above the table in upper case, e.g. TABLE 3. FOUNDATIONS OF THE....;
   - Figure captions should be set beneath the figure in italics, e.g. FIG. 1. Former population...;
   - Number tables and figures consecutively with Arabic numerals;
   - Verify that tables and figures will be legible after reduction to final page size (12 cm × 19 cm);
   - Ensure that tables are individually titled, that figures are individually captioned, and that headings and captions are accurate and adequate;
   - Obtain written permission from copyright holders to use tables, figures or other material published elsewhere under copyright;
   - Check with MTCD Publishing Section, as requirements for graphics are subject to change.

7. **Numbers and units of measurement**
   - Express all quantities in SI units (see the IAEA Style Manual, Appendix A).

8. **References**
   - Use the Agency style of numbered references (see the IAEA Style Manual, Chapter 11);
   - Number references consecutively in the order in which they are first cited;
   - Ensure that references are accurate and complete;
   - Do not cite Agency publications that are of only short term validity or Agency documents that have not been approved for publication by the Publications Committee.

9. **List of contributors to drafting and review**
   - Supply a single alphabetical list of contributors to drafting and review, giving each contributor’s institution and country.
4. **TYPICAL TASKS OF THE TECHNICAL OFFICER**

**Approved DPP**

(see Step 4 of step-by-step manual and SPESS Section 3 Part I for more detail)

Develop clear vision, considering:
- Users’ needs
- Feedback from events
- Good practices
- Related publications
- Context in safety standards programme

Prepare summary/outline of draft standard, including objective and scope

Select experts (typically 1 to 8), considering:
- Balance of MS representation
- Range of disciplines
- Suggestions from SSCs

Send advance materials to experts prior to 1st drafting meeting:
- DPP
- Feedback report
- Summary/outline of draft standard
- Standard to be revised, if relevant
- Related safety standards
- Guidelines for drafting safety standards

At 1st drafting meeting:
- Steer team of experts
- Keep team focused and avoid delays
- Prepare first draft

Verify proper coverage:
- Conformity with DPP
- Links with requirements
- Appropriate level of detail
- Appropriate bibliographic references
- Coordination with other IAEA divisions

Organize further drafting meetings, if necessary

Obtain agreement from Section Head

(see Step 6 of step-by-step manual for more detail)

Send first draft to Coordination Committee for approval

**FIG. 1. Typical tasks of the TO in preparing the first draft of a safety standard.**