



Comments on the ICRP draft document Dose coefficients for intakes of radionuclides by members of the public: Part 1

Background of ARPANSA

ARPANSA is the Australian Government's primary authority on radiation protection and nuclear safety. A component of our purpose is to regulate Commonwealth entities and to promote national uniformity in the approach to regulation in Australia. While the enforcement of regulation concerning radiation protection is undertaken by the Commonwealth, State and Territory regulators in Australia. ARPANSA leads the introduction of international best practices into the Australian regulatory environment through its role in the development and publication of national radiation protection standards, which is done in consultation and collaboration with all jurisdictions of Australia. Furthermore, ARPANSA acts as an expert advisory resource for State and Territory bodies. In these roles, ARPANSA regularly draws on the recommendations of the International Commission of Radiological Protection (ICRP) along with safety standards and guides produced by the International Atomic Energy Agency (IAEA), and so has a vested interest that guidance at the international level is consistent and implementable.

General comments

ARPANSA is grateful for the work that has been performed to provide this document. The publication of updated dose coefficients for members of the public is a natural development given the completion of the Occupational Intake of Radionuclides publications. This first publication in the series provides the justification for the need to update the dose coefficients.

On review of the present document, it is evident that great care was taken in the preparation of this draft, and ARPANSA is broadly satisfied with both the general content and direction of the document. Revisions that have been made to change many models are well justified to update them to best scientific knowledge and align them with other ICRP publications.

Of note, it is commended that the structure used in the sections defining the routes of intake and dosimetric data for each element is well planned out and consistent across the document.

ARPANSA commends the ICRP on a thorough and clear document. Only a small number of minor suggestions are advised for improvement.

Specific comments

There is a lack of consistency in the figures used for the report, particularly regarding the image quality, alignment, borders, fill, font type and size. While it is understood that many figures have been taken from previous publications the document would present better if the figures were more consistent.

For example, Figure 1.1 uses different shading, borders and fonts from those used in Figures 2.1, 2.3 & 2.5 while Figures 2.4 & 2.6 differ from the rest of the figures used in Chapter 2.

The same issues are observed with the figures that are used to describe the systemic models for the elements, in many case the differences between the figure used to describe the inhalation pathway differs significantly in style from the one used to define the ingestion pathway, i.e. Figure 8.1 vs. Figure 8.2.

PDF caption when opening in 'Occupational_Intakes_of_Radionuclides_Part1'

Figure 2.2 appears to be of poor-quality lacking resolution when viewed. If an updated or better resolution image is available that would present better.

Figure 15.3 is of poor quality and should be updated.

Figures 25.4 & 32.1 are significantly different to the figures for the other models in the document.

Figures A.1, A.2 & A.3 appear crowded and are not consistent in their use of significant figures.

A Table detailing where changes in the default absorption type compared to previous ICRP documents (ICRP71). If there are differences a short comment on why, example Default for caesium had changed. Table would be useful even without comparison to ICRP71. Similar to table 2.5, perhaps it could even be included within this table.

Some calculation examples could be added as an Annex. See ICRP144 Annex D.

Section on Systemic distribution, retention and excretion for each element could form a separate Annex rather than being part of the main text. This is valuable information; however, most readers will not be able to use this data. It could still form part of the text as an Annex which has these details for each element.

Portrait page layout for main text and then landscape for the dosimetric data is somewhat problematic, particularly for those that wish to have this printed. Is there a way to edit to keep as portrait for all pages in the main text? This could be achieved with a note under the table to describe the Absorption types and chemical forms.

Dosimetric data tables should also have a symbol for the default form to make it more obvious.

Strontium systemic model heading is in bold as its own section heading. In other nuclides it is a sub-heading within systemic distribution, retention and excretion e.g. Tellurium, Iodine

Paragraphs 76 & 77 and Figure 2.4 used an apostrophe for some of the HRTM regions e.g. ET'₂, BB'. There is not real explanation for this, is this somehow different from ET₂?