

## The Analysis of Key Issues on the IAEA Basic Safety Standards Draft

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### 1. Introduction

In 2007, the International Commission on Radiological Protection (ICRP) revised, updated, consolidated, and developed Recommendations of the International Commission on Radiological Protection (ICRP 103[1]). Accordingly IAEA safety standards committees (RASCC, WASSC, NUSSC and TRANSSC) have reviewed and revised the International Basic Safety Standards for Protection against Ionizing Radiation and for the Safety of Radiation Sources (BSS 1996 [2]).

The reasons and objectives for proceeding to a revision of the BSS are as follows:

- Link a revised BSS to the new Safety Fundamentals and to take account of new ICRP recommendations,
- To take account of more recent international agreements such as conducts, codes, guidance and conventions,
- To ensure consistency with and appropriate cross-referencing to closely related publications,
- For improvements that could be made to the text of the BSS on clarity, detail and consistency.

To maximize the merit of revision, it is essential that careful attention should be paid by member states. During last few years, there have been many meetings relating to the revision of the BSS, including drafting meetings, technical meetings, and coordination meetings. From these meetings the revised BSS (draft 1.0, draft 2.0, draft 2.5, and draft 3.0) were made.

### 2. Key issues on the draft 3.0 of the revised BSS

By the action plan of safety standards committees, the draft 3.0 of the revised BSS was issued to 38 member states and 10 international organizations for comment in January 2010. This would necessitate careful attention being paid in the revision to a process for considering the merit of proposed changes.

#### 2.1 12 Key issues

By the action plan of safety standards committees, among the comments for the draft 3.0 of the revised BSS from member states and international organizations, 12 key issues were identified by Radiation Safety

Standards Committee (RASCC). Key issues should be discussed carefully further by all experts in order to provide guidance on how they should be applied distinctly. The 12 key issues are shown in Table I.

Table I: 12 key issues

1. Exemption and clearance
2. Optimization and constraints
3. Radon
4. Generic criteria for protective and other actions in emergency exposure situations
5. Non-medical imaging
6. Medical exposure
7. Protection of the environment
8. D-values and categorization of sources
9. Interface between safety and security
10. Exposure of air crew
11. Emergencies not requiring activation of the national emergency plan
12. Tables for dose conversion factors

#### 2.2 The opinions on issues

There are inconsistent values and tables in the draft 3.0 of the revised BSS. The value of exemption and clearance and dose conversion factor (1, 3, 8, 12) are not consistent between text and table. Also these values should be harmonized with TS-R-1[3].

In case of dose constraints (2), there have been discussions on responsibility of set-up and evaluation. In occupational exposure, the strong opinion is that dose constraints should be set by the operator, with a provision for some involvement by the regulatory body. Besides there are some opinion that it is also necessary to cover the responsibility of setting dose constraints for designers and manufacturers. For public exposure, the most members agreed that dose constraints should be approved by government. However these should be based on proposals by their operator and take into account the type of facility and the environmental conditions.

There were opinions on ambiguous sentences and words (4, 5, 7, 9). Through thorough reviews, these will be amended. Besides, some member states insist to change the assignment of medical exposure's responsibility (6) from the radiological medical practitioner to medical practitioner. Also localized emergencies that are confined to the operator's premises

and do not require activation of the national emergency plan were discussed.

In Euratom, the exposure of air crew (10) is treated as a planned exposure situation, while it is treated as an existing exposure situation in current draft. Because the annual dose of air crew can be restricted by the limitation on the number of flight hours, the exposure of air crew can remain in existing exposure for the flexibility.

Besides above 12 key issues, some other issues have been discussed as follows:

- The requirement to consider “alternatives techniques” as part of the justification process,
- Responsibility of arrangement for establishing and maintaining a national repository of radioactive waste (for consistency with GS-R-1) [4],
- Responsibilities of manufacturer for the safety of medical devices and associated software.

### 3. The process of the implementation into the national legislation

Korean government is considering implementing those changes in the BSS and the ICRP 2007 recommendations into its national radiation protection laws and regulations. General process of the implementation of international agreements into the national legislation is shown in Fig. 1. To incorporate the ICRP 103 and revised BSS into the relevant national regulation, KINS has been conducting the safety research [5].



Fig. 1. The process of the implementation into the national legislation

Through the investigation on the possible impact and applicability of the ICRP 103 and revised BSS to Korean nuclear and radiation industry, KINS is in a process of development of the final draft of the revision of the radiation protection regulations by the end of February 2012. Inter alia, the application of dose constraints in planned exposure situation and reference level in existing and emergency exposure situations are the items that have been discussed considerably. The opinion that the responsibility of the set-up of dose constraints should be on operator is partly reasonable. However there are many licensees of RI & RG facilities

that have not enough ability to discharge its responsibility of set-up of dose constraints by themselves. In this case, it is necessary to provide some regulatory guidance on the set-up of dose-constraints. Besides this issue, some other issues such as change in the tissue and radiation weighting factors, practical application of the exclusion and exemption principles, active participation of the stakeholders, and change from process-based system to situation-based system are also under the study for the most appropriate implementation of the ICRP 103 and revised BSS into Korean radiation protection regulations taking into account the current domestic social, cultural and economic circumstances.

### 4. Conclusions

All the remaining issues on the revised BSS draft 3.0 will be discussed and cleared and the final version of the revised BSS is expected to be published by the end of 2011 through the conduct of RASSC and CSS meetings, member states and international organizations consultations, and the conduct of international workshops including the one in Nairobi from 7th to 9th September 2010.

At the same time, the process of the implementation of the ICRP 103 and revised BSS into Korean radiation protection regulations will be continued for the development of the final draft of the revised regulations by the end of February 2012. In this process, the active involvement of all relevant stakeholders including licensees will be encouraged and the applicability and its possible impact on the domestic nuclear and radiation industry will be one of the major considerations.

### REFERENCES

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