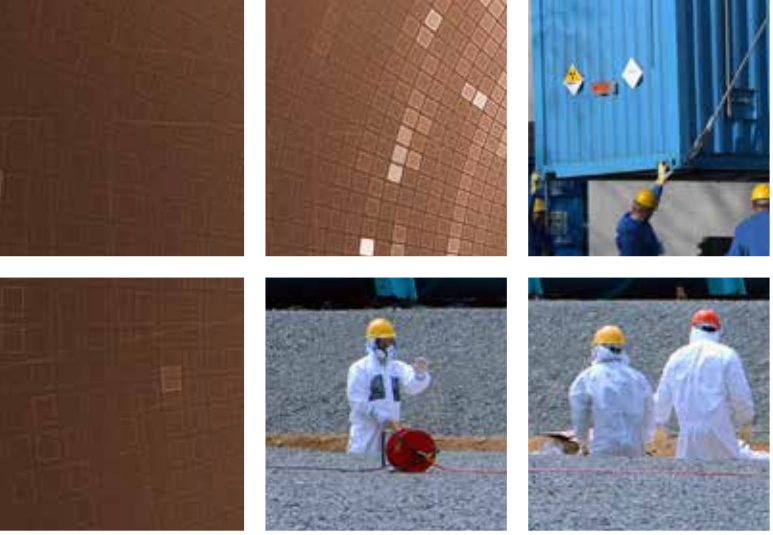


IAEA
International Atomic Energy Agency

Factsheet for Decision Makers

Radiation Protection of Workers

JUSTIFICATION AND OPTIMIZATION OF PROTECTION

Why is it important?

The protection of workers and the public from the potentially harmful effects of radiation needs to be achieved without restricting the beneficial uses of radiation enjoyed by society. All uses of radiation need to be justified to ensure that they produce an overall benefit. Once a particular use of radiation is justified, optimization of protection is applied. Optimization means balancing between the various levels of protection that might be achieved in order to identify the "best" possible option.

What do I need to know?

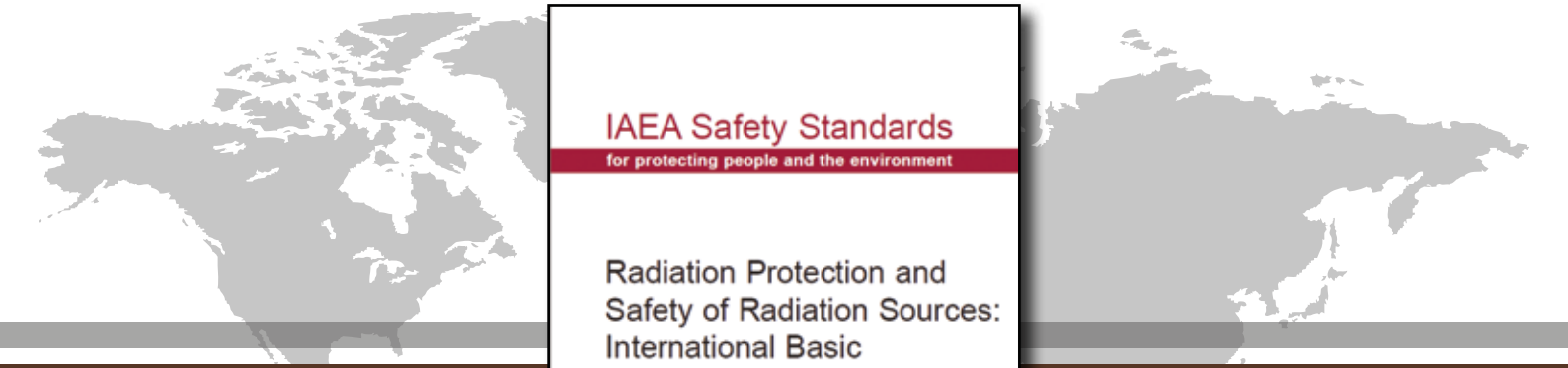
The system of radiation protection and safety outlined in the BSS sets dose limits for occupational and public exposure to restrict the radiation risks. Compliance with the dose limits is not, however, sufficient. Optimization requires that all reasonable steps are taken to reduce doses further taking into account costs, available resources and other factors.

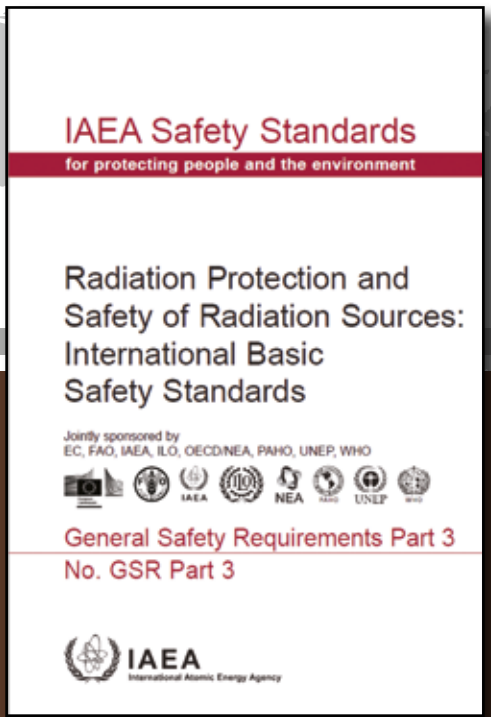
Decisions on both justification and optimization involve balancing between the costs and benefits that go beyond radiation protection. Economic, societal and environmental factors should be considered.

The licensee, employer and/or facility operator should take optimization into account at all stages - from design, through operation to decommissioning and waste management. The dose constraints should be considered in the dose optimization process.

The licensee, employer and/or facility operator need to be aware of:

- The distribution of individual and collective doses among different groups of workers and the resulting dose reduction;
- The likelihood and magnitude of accidental exposures;
- The interaction of the protection actions for all workplace hazards and the risks to both workers and the public;
- Good practices from other similar workplaces;
- The resources available for protection and safety and the associated costs.

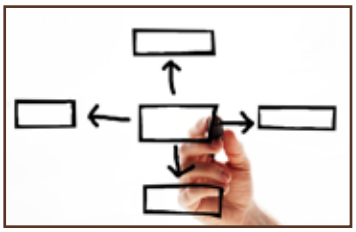




The International Basic Safety Standards (BSS) are the international benchmark for radiation safety. The BSS are used in many countries as the basis for national legislation to protect workers, patients, the public and the environment from the risks of ionizing radiation.

The BSS are based on the most recent scientific evidence on the effects of ionizing radiation and take into account practices and experiences from around the world in the use of ionizing radiation and nuclear techniques. Eight international organizations sponsor the BSS.

What actions are required?



The regulatory body is responsible for decisions on justification of a particular use of radiation. It should consult relevant stakeholders. Decisions on justification should be reviewed on a regular basis.

The licensee, employer and/or facility operator are responsible for ensuring that radiation doses received by workers and the public are optimized and that they do not exceed the dose limits.

Radiation protection needs to be an integral part of the general health and safety protection program at the workplace.

Workers are responsible for fulfilling their obligations and for carrying out their duties for protection and safety to ensure that their doses are reduced as far as reasonably achievable.

Resources

Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards, No. GSR Part 3
http://www-pub.iaea.org/MTCD/publications/PDF/Pub1578_web-57265295.pdf

Occupational Radiation Protection Safety Guide

Occupational Radiation Protection Networks
http://www-ns.iaea.org/tech-areas/communication-networks/orpnet/

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