



Factsheet for Decision Makers

Radiation Protection of the Public

RADIONUCLIDES IN FOOD AND DRINKING WATER

Why are they important?

Naturally occurring radioactive material, such as potassium-40, polonium-210, phorium-232 and uranium-238 are routinely found in food and drinking water and result in a radiation dose when consumed.

Small amounts of artifically occurring radioactive material, such as caesium-137 from nuclear weapons fallout, or from authorized discharges from licensed facilities following a nuclear or radiological emergency, may also be present.

What do I need to know?

In normal situations, a reference level of 1 mSv in a year applies to the individual radiation dose from the consumption of food. The same reference level applies separately to drinking water.

The World Health Organization (WHO) has established criteria for drinking water quality in the form of “guidance levels” with respect to its content of radionuclides. If they are exceeded, it does not imply that the water is unsuitable for consumption. The BSS contain a requirement that the highest annual individual doses received from the consumption of drinking water do not exceed a reference level of 1 mSv. Compliance with the WHO guidance levels allows the water to be consumed without further investigation.

The Joint WHO/FAO Codex Alimentarius Commission has established “Guideline Levels” for radionuclides in foods destined for human consumption and traded internationally, following a nuclear or radiological emergency and assume that 10% of the food supply is contaminated. The Guideline Levels are based on a reference level of 1 mSv in a year.

The IAEA has established international standards on the derivation and use of activity concentrations of radionuclides in food, milk and drinking water for use following a nuclear or radiological emergency.



IAEA Safety Standards

for protecting people and the environment

Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards

Jointly sponsored by
EC, FAO, IAEA, ILO, OECD/NEA, PAHO, UNEP, WHO



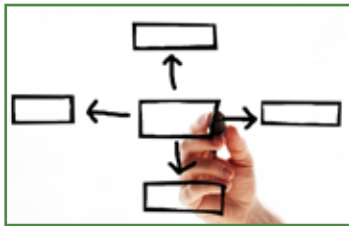
General Safety Requirements Part 3
No. GSR Part 3



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?



National authorities need to establish reference levels in terms of activity concentrations of individual radionuclides for use in normal situations.

Advance planning is necessary in order to consider the need for control of food and drinking water in the event of a nuclear or radiological emergency.

National authorities need to address specific long term exposure situations where elevated concentrations of radionuclides may be found in specific foods over an extended period. An example of such a situation is the recycling of caesium-137 in forest ecosystems which can result in high concentrations in berries, game and mushrooms.



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

WHO, Guidelines for Drinking Water Quality
http://www.who.int/water_sanitation_health/publications/2011/dwq_chapters/en/

JOINT FAO/WHO FOOD STANDARDS PROGRAMME, CODEX ALIMENTARIUS COMMISSION, Codex General Standard for Contaminants and Toxins in Food and Feed
http://www.fao.org/fileadmin/user_upload/livestockgov/documents/1_CXS_193e.pdf