

### 2.3.1 *Protection of human health: General requirement*

The predicted radiological risk to individuals from a waste disposal facility shall not exceed  $10^{-6}$  fatal cancers and serious genetic effects in a year, calculated without taking advantage of long-term institutional controls as a safety feature.

### 2.3.2 *Variance from the general requirement*

If there is no practicable method of fully meeting the requirements of Section 2.3.1, an optimization study shall be performed in order to determine the preferred option. A disposal facility, under these circumstances, shall be:

- (a) compatible with the results of such a study, and
- (b) such that the predicted risk to individuals does not exceed that which is presently accepted from current operations involving the same wastes.

## 3. **Guidelines for Application of the Basic Radiological Requirements**

### 3.1 *Identifying the individuals concerned*

The individual risk requirements in the long term should be applied to a group of people that is assumed to be located at a time and place where the risks are likely to be the greatest, irrespective of national boundaries.

### 3.2 *Probabilities-of-exposure scenarios*

The probabilities-of-exposure scenarios should be assigned numerical values either on the basis of relative frequency of occurrence or through best estimates and engineering judgements.

### 3.3 *Timescale of concern*

The period for demonstrating compliance with the individual risk requirements using predictive mathematical models need not exceed 10,000 years. Where predicted risks do not peak before 10,000 years, there must be reasoned arguments that beyond 10,000 years the rate of radionuclide release to the environment will not suddenly and dramatically increase and acute radiological risks will not be encountered by individuals.

### 3.4 *Output from predictive modelling*

Calculations of individual risks should be made by using the risk conversion factor of  $2 \times 10^{-2}$  per sievert and the probability-of-exposure scenario with either:

- (a) the annual individual dose\* calculated as the output from deterministic pathways analysis, or
- (b) the arithmetic mean value of annual individual doses from the distribution of individual doses in a year calculated as the output from probabilistic analysis.

### 3.5 *Optimization*

When an optimization study is required in accordance with Section 2.3.2, it should take into account of all relevant radiological and non-radiological factors.

\* "Dose" refers to the effective dose equivalent committed per year of exposure.