

In the event of any differences in interpretation of this guide, the Finnish version shall take precedence over this translation.

ACTION LEVELS FOR PROTECTION OF THE PUBLIC IN NUCLEAR POWER PLANT ACCIDENTS

1 GENERAL

The radioactive materials released in the event of accident may pose a radiation risk to the environment, requiring countermeasures that probably will inconvenience the normal life of the surrounding area.

Such emergency response actions may include restrictions on production and distribution of foodstuffs, distribution of iodine tablets and evacuation of the population. Since said actions will cause inconvenience to the people being protected as well as to outsiders, every attempt shall be made, when taking decisions, to assure that the risk and inconvenience caused by the countermeasures is smaller than the danger posed by the accident, assuming absence of protective action.

2 SCOPE

The purpose of this guide is to provide some estimate of the radiation exposure that probably would cause greater harm than required emergency response actions.

3 CONCEPTS AND DEFINITIONS

Action level means a radiation exposure which requires certain countermeasures to provide protection against the health hazards involved. In general, it is impossible to determine action levels that are appropriate for all occasions, wherefore the action levels agreed upon in advance are more in the nature of guidance intended to aid the decision-maker and his experts.

If it can be assumed that the inconvenience caused by a specific countermeasure is at all events so

small as to require protective action when a pre-selected radiation exposure is exceeded, the term compulsory action level is used. Sometimes it is possible to pre-determine a radiation exposure so low that protective action taken to achieve dose reductions would be more than required by the general standards of radiological protection. Below this so called non-action level, no countermeasures to provide protection against radiation are necessary.

The action level is given as a dose. Derived action level means the value, derived from the given action level, of some other quantity describing the radiation exposure (concentration, dose rate, time integral of activity etc.) and it entails the same emergency response actions as the corresponding action level.

4

ACTION LEVELS

Evacuation

Compulsory action levels are:

- 0.1 Gy whole body dose
- 0.5 Gy dose to skin
- 0.2 Gy dose to child's thyroid

An additional precondition for evacuation is that a significant dose reduction can thereby be achieved and that it can be carried out well organized. The evacuation of large areas of apartment buildings, if not drilled, is a measure for which no compulsory action levels can be determined in advance.

An attempt shall be made to verify action levels through measurements. If this cannot be done early enough, the required initial action shall be taken on the basis of dose calculations that utilize release estimates and meteorological data.

Rejection of Foodstuffs

The same compulsory action levels apply as to evacuation. Derived compulsory action level for rejection of milk is 2.6 kBq/l of ^{131}I . A concentration of 37 Bq/l of ^{131}I is used as a derived non-action level. Rejected milk may be used for making dehydrated milk product, provided that this is done without contaminating other production. A representative sample of the product shall be sent to the Institute of Radiation Protection for analysis. The product may not be put on the market without prior IRP approval.

Distribution of Iodine tablets

Distribution of tablets containing 200 mg KJ is a measure that should be taken only when the experts group deems it necessary. Attention shall be given to the fact that the harm caused by such action is minimal.