

THE USE AND LEVEL OF THE ALPHA VALUE IN SWEDEN

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One of the fundamental principles in radiation protection is the optimization principle also known as the ALARA-principle, namely “to keep doses as low as reasonably achievable”. Optimization is often carried out by applying experience and common sense but when it comes to costly radiation protection actions and more complicated cases, there is also a demand for quantitative calculations such as a cost-benefit analysis. As the benefit, including the dose reduction, then is compared with the action cost, the radiation dose must be ascribed a monetary value. This so-called alpha value is defined by ICRP (International Commission on Radiological Protection) as a dimensional constant expressing the cost assigned to the unit collective dose (1 manSv) for radiation protection purposes.

All Swedish NPP's have in their guidance documents an established alpha value that states the sum of money that the company is willing to pay in order to reduce the collective dose by one mansievert. The value was established in 1994 and was adjusted in 2002 with regard to the inflation. The same value, 4,5 MSEK per manSv, was used in all NPP's up to 2008.

At meetings during spring 2006 between the radiation protection managers at the Swedish nuclear plants, SKB, Studsvik Nuclear AB and Westinghouse Sweden Electric it was decided that an upgrade of an investigation performed in 1991 should be done. The aim of the upgrade was to collect experience on how the alpha value is used in Sweden, which included sending a questionnaire to people engaged in radiation protection at NPP's, and in the rest of the world along with information on how the alpha value possibly has changed worldwide during the last 15 years.

In addition, it was also necessary to consider the factors that in general should affect the alpha value level, namely:

- Valuation of the radiation hazards
- The value of a human life
- The overall radiation protection policy
- Other work related environmental risks

The result of the investigation is presented in the poster. As one result from the investigation the alpha value at all Swedish NPP's has been raised from 4,5 million SEK (approximately 0,5 million EUR) to 10 million SEK (approximately 1,1 million EUR) for every manSv avoided.

An English translation of the full investigation report may be provided by Staffan Hennigor upon request.