

Assuring Nuclear Safety Education into the 21st Century in Sweden

G. Löwenhielm^a, T. Lefvert^b

^aSwedish Nuclear Power Inspectorate, Stockholm, Sweden

^bSwedish Nuclear Technology Centre, Stockholm, Sweden

E-mail address of main author: gustaf.lowenhielm@ski.se

In many countries in the Western world there has been a concern for the future competence in nuclear safety in particular and nuclear technology in general. There have been many reasons for this concern, i.e. nuclear power has been debated in many countries, declining research in nuclear safety- and technology area, retiring professors are not replaced and in the case of Sweden the parliament has decided to phase out nuclear power (which resulted in that Barsebäck 1 reactor was shut down in 1999).

Since the beginning of the 1990's the Swedish Centre for Nuclear Technology (SKC) was established and financed by SKI, ABB-Atom (later Westinghouse) and the Swedish utilities. The purpose was to support PhD students with full PhD grants in topics related to nuclear technology, see also ref. [1]. The budget was in the year 2001 about 10 MSEK/year.

In Sweden the Government's appropriations directive to SKI for 2001 (and the following years) states that "SKI shall take action to ensure that the competence required for the safety and non-proliferation work is maintained and developed within SKI as well as at the licensees and elsewhere in the country". From an educational point of view the year 2001 was a crucial year since undergraduate and postgraduate education at universities and institutes of technology wound up in the risk zone when several professors in nuclear subjects retired. In this situation the Royal Institute of Technology (KTH) announced that financial support was needed in order to fill some of these positions. This applied to the professorships in Nuclear Chemistry and Reactor Technology at KTH. KTH also needed support for the professorship in Reactor Physics. Chalmers University in Technology (Chalmers), on the other hand, had decided to appoint a replacement for the professorship in Nuclear Chemistry.

This situation was resolved for the professorship in Nuclear Chemistry at KTH as the Swedish Nuclear Fuel and Waste Management Company decided to support this professorship. At this point in time the SKC decided to take an overall view of the situation at the main technical universities in Sweden to assure future education in Sweden. The financial partners decided to increase SKC's budget from 10 MSEK/year to 16 MSEK/year to also include support to professorships, alternatively lectorships. This support was given to the main education centres, KTH, Chalmers and University of Uppsala (UU). These agreements between the financial partners and the three education centres are valid for six years from January 1st, 2002.

SKI finds it highly gratifying that SKI, together with the nuclear power industry, has secured future undergraduate and postgraduate programmes at KTH, Chalmers and UU. According to a study in Sweden the annual need for university-educated staff is about 50 persons/year. The same study also indicates that it may be sufficient to maintain the

educational level that exists today. The measures adopted by SKC and SKB to support undergraduate and postgraduate education can therefore be regarded as adequate at the present time.

With these agreements, SKI has, together with the power industry, clearly demonstrated its intention to ensure that competence is maintained and developed. It is, however, important to follow up how well the institutes of technology and universities are able to attract engineering students in nuclear power related courses and also the postgraduate students. The experience from the first two years seems to be promising.

- [1] TIRÉN, L.I., "Nuclear Technology Centre – Preserving and developing competence and resources", Proc. of an Int. Conf. on the Nuclear Power, IAEA, Vienna, 5-8 Sept. 1994.