

# **Siting of a deep geological repository - A matter of geology and democracy**

Claes Thegerström, Director of the Siting Department  
and Vice President,  
Swedish Nuclear Fuel and Waste Management Co, SKB,  
Stockholm, Sweden

## **Abstract (invited paper)**

Since the end of the 1970s extensive research and development work on deep geological disposal has been made in Sweden. The focus of the programme is on final disposal of the spent fuel without reprocessing. A concept has been developed for encapsulation of the spent fuel in copper canisters that are emplaced in deposition holes and embedded in bentonite clay at about 500 m depth in crystalline rock.

A broad basis of knowledge has been established over the years through laboratory studies, underground research experiments and performance assessment model development. The work has been conducted in collaboration with universities, colleges, institutes of technology, research institutes and other experts in Sweden and abroad.

Site selection for the deep repository is maybe the most difficult and sensitive issue within the whole programme. The repository will be sited at a suitable location in Sweden where both rigorous safety requirement can be fulfilled and the necessary activities can be carried out with the consent of the concerned municipality and the concerned population.

Concrete siting work for the deep repository began in 1992 based on the twin principle of "Safety and democracy", i.e. looking for safe sites with local acceptance. At that time an extensive body of data on the bedrock in different parts of the country was already available. This data consisted of the results of general geoscientific surveys and specific studies on some ten or so "study sites" all over the country. Since 1992, general siting studies of the entire country have been performed, along with feasibility studies of individual municipalities.

The paper will describe the geoscientific basis for deep geological disposal in Sweden. Practical experiences of siting studies will be discussed with a focus on the possibilities to fulfill safety-related (geoscientific) as well as societal and public opinion aspects for siting of a deep repository for spent nuclear fuel.