

**Session title:** **Nuclear Waste Management: From Public Perception To Industrial Reality**

*When?* Friday, February 19, 2010: 3:30 PM-5:00 PM  
*Where?* Room 11A (San Diego Convention Center)

**Waste Management Options in Europe**

***Roland Schenkel , European Commission, Joint Research Center, Brussels, Belgium***

The European Union currently produces 31% of its electricity from nuclear fission. It represents an important factor in maintaining European competitiveness and the security of energy supply. As revealed by recent public opinion surveys, the perception of nuclear energy in Europe is becoming more positive, and is directly linked to the solutions adopted for the treatment and final disposal of nuclear wastes. In Europe, several strategies are being implemented, namely the fuel recycling, and the direct disposal of the irradiated fuel elements. Both strategies, however, need the deep-geological disposal technology for either the glass packages or the fuel elements. Concrete projects are being implemented in several European countries, with the most advanced being in Finland and Sweden. The situation in Europe will be described.

**Deep Geological Disposal of Nuclear Waste in the Swedish Crystalline Bedrock**  
***Claes Thegerström , Svensk Kärnbränslehantering AB, Stockholm, Sweden***

The KBS-concept for deep geological disposal of HLW or spent nuclear fuel has been developed in Sweden. It is based upon the multiple-barrier principle with encapsulation of the radioactive material in copper canisters that are placed at about 500 m depth and surrounded by bentonite clay in deposition tunnels in the crystalline bedrock. RD&D-work related to this concept has been performed since 30 years and, following more than 10 years large scale experiments in the SKB Encapsulation Laboratory and the Äspö Hard Rock Laboratory, the programme is now approaching industrial implementation. The Forsmark site, 100 kilometres north of Stockholm, was selected in June 2009 and a licence application for construction of the deep repository will be provided to the safety authorities by the end of 2010. Assessment of the long-term safety is a key issue for licensing of the repository and extensive scientific and modelling work related to barrier performance and risk assessments has been made. The status and main conclusions of this work will be presented and discussed.

**The Way Forward in the US: Nuclear Waste Management**  
***Allison Macfarlane , George Mason University, Fairfax, VA***

Many innovative nuclear fuel cycle schemes are being considered by researchers and designers aiming at lowering the amount of High Level Waste generated per unit of electricity produced. These could be deployed to support the operation of current/future nuclear power plants in order to achieve a significant reduction in the amount of high-level radioactive waste requiring geologic disposal, to reduce significantly accumulated plutonium in civilian spent fuel, and to extract more useful energy from nuclear fuel. More generally, the sustainable development of nuclear energy is linked to the development of innovative fuel cycle technologies as well as reactor technologies. However, such a development will be threatened, unless the problem of declining number of university courses associated with it, and the declining interest among students for it, is addressed.