

8. Sunday, February 17, 2008, 8:30 AM to 10:00 AM

Burn or Bury? Global Proposals for Managing Highly Radioactive Nuclear Waste

Session Title: Burn or Bury? Global Proposals for Managing Highly Radioactive Nuclear Waste

Session Type: 90-Minute Symposium

Session ID:

Session Time: 2/17/2008 8:30:00 AM

Location: Hynes Convention Center, Third Level

Room: Room 304

Synopsis: The management of highly radioactive waste is the main public concern hindering the acceptance of nuclear energy. Burying nuclear waste underground in a suitable geological medium provides long-term safe conditions for the waste because of both natural and engineered repository configuration. Several countries envisage a nuclear fuel cycle in which spent fuel, properly conditioned and packaged, is placed in the geologic repository. However, less than 1 percent of spent fuel represents what can be unequivocally defined as waste. If nuclear energy has to contribute to the fulfilment of growing energy needs and to the diversification of energy sources (also in view of climate change concerns), an optimized use of nuclear fuel has to be implemented. This means adopting fuel cycles in which spent fuel is reprocessed to recycle its usable components. Moreover, different scenarios for nuclear waste minimization are under discussion. Among others, transmutation of long-lived radiotoxic isotopes into short-lived or stable ones, by using either accelerator-driven systems or fast reactors, is being considered. In parallel, improved scenarios are being investigated, aiming at reducing the amount of highly radiotoxic isotopes. Irrespective of the different alternatives there will always be some waste that has to be safely disposed of in a repository. These ambitious developments set challenging demands on the knowledge of the underlying physical processes as well as the ability to develop sound engineering solutions.

Organized by:

Aidan Gilligan, European Commission, Joint Research Centre, Brussels, Belgium

Presentations:

Moderator--**Thomas Fanghaenel**, Institute for Transuranium Element, Joint Research Centre, Karlsruhe, Germany

Waste or Fuel: How Does the World View the Nuclear Fuel Cycle?--**Phillip Finck**, Idaho National Laboratory, Idaho Falls, ID

Spent Fuel Disposal: International Cooperation and the Science Behind Repositories--**Fred Karlsson**, Svensk Kärnbränslehantering AB, Stockholm, Sweden

Sustainable Nuclear Power: Science Behind the Transmutation and Reprocessing of Fuels--**Dominique Warin**, French Atomic Energy Agency, Gif-sur-Yvette, France