

## Expert Group on Reactor Fuel Performance

<b>Chair:</b>	Dr. Larry Ott	(U.S.A.)
<b>Members:</b>	All NEA member countries	
<b>Regular Observer (Non-Member):</b>	European Commission	
<b>Observer (International Organisation):</b>	International Atomic Energy Agency (IAEA)	
<b>Date of creation:</b>	30 <sup>th</sup> June 2011	
<b>Duration:</b>	30 <sup>th</sup> June 2013	

### **Mandate:**

Agreed at the 22<sup>nd</sup> meeting of the Nuclear Science Committee in June 2011  
[NEA/SEN/NSC(2011)3]

### **"Scope**

Under the guidance of the Working Party on Scientific Issues of Reactor Systems (WPRS) the Expert Group will perform specific tasks associated with fuel performance aspects of present and future nuclear power systems. Reactor types considered include, but are not limited to the following:

- Present generation LWRs and HWRs with advanced and innovative fuels, evolutionary and innovative LWRs and HWRs
- High temperature gas reactors (HTRs)
- Fast spectrum systems and other novel systems including all six of the systems being developed under Gen IV
- Accelerator driven (sub-critical) and critical systems for waste transmutation.

### **Objectives**

To provide expert advice to the WPRS and the nuclear community on the development needs (data and methods, validation experiments, scenario studies) for existing and proposed fuel designs. A key activity associated with this objective is the identification and preservation of appropriate experimental data.

To provide specific technical information regarding:

- The status of national and international programmes including experimental capability

- The provision of experimental data for model development and validation from the IFPE Database
- Methods for code verification.

This technical information will generally be derived from a combination of direct experimental evidence and/or the results of theoretical benchmark analyses using accurate, validated modelling methods. In either case the availability of suitable experimental data is a fundamental requirement. A key objective of the group will therefore be to help identify, evaluate and preserve this type of experimental data. In this context the Expert Group will monitor, steer and support the continued development of the International Fuel Performance Database (IFPE).

To facilitate the dissemination of technical information and knowledge through activities such as workshops, benchmark studies and training activities.

The Expert Group will establish links with other bodies working in the area of Fuel Performance. In particular the Expert Group will liaise closely with the NEA CSNI Working Group on Fuel Safety (WGFS), and the NEA NSC Working Party on Multi-scale Modelling (WPMM). Other international activities directly linked to the work of the EGRFP, include the Halden Reactor Project and the IAEA Technical Working Group on Water Reactor Fuel Performance and Technology (TWGFPT).

### **Deliverables**

- Report on current status and future development of International Fuel Performance Experiments database (IFPE) - End 2011. To include:
  - priority ‘wish-list’ for future data and evaluations
  - evaluation of potential uncertainties due to missing or incomplete experiment documentation
  - review of IFPE database structure, including practicality of preserving raw experimental data
  - review of requirements for development of database structure/tools
  - consideration of appropriate review process
- Report on comparison of current global experimental capability with anticipated future requirements (including potential developments in modelling methods)
- Specification for benchmark evaluation of sets of Power/Temperature distribution measurements
- Review of Guidance to IFPE evaluators
- Provide IFPE data for FUMEX III benchmark activity and incorporate feedback (e.g. corrections, new data requirements) into the IFPE programme.

### **Meeting frequency**

Once per year for full Experts Group with additional meetings in support of particular activities (e.g. FUMEX, )."