TRIP REPORT

Meeting of the CSNI Task Force on Advanced Reactor Experimental Facilities (TAREF)

S. I. Abdel-Khalik, ACRS

The meeting was held at OECD Headquarters in Paris on November 3-5, 2008. Twenty participants from 9 countries[1] and two international organizations[2] attended the meeting. The objectives of the TAREF Task Force are: (1) Provide an overview of identified facilities (existing or planned in TAREF member countries) suitable for performing safety research investigations relevant for Gas Cooled Reactors (GCR) and Sodium Fast Reactors (SFR); (2) Review the Phenomenon Identification and Ranking Tables (PIRT) already carried out for GCRs to identify important safety issues; (3) Identify safety issues relevant for different SFR designs; and (4) Propose a strategy for efficient utilization of facilities and resources to meet the short and long term safety requirements unique to GCRs and SFRs. The group is expected to prepare two reports, one for GCRs to be issued in June 2009, and another for SFRs to be issued in June 2010. Two members were selected to serve as co-chairs: Jennifer Uhle (USNRC) will lead the effort on GCRs and Joelle Papin (IRSN) will lead the effort on SFRs.

A questionnaire aimed at identifying existing and planned facilities suitable for safety studies on GCRs and SFRs was previously prepared by CSNI. Preliminary responses provided by TAREF member countries were reviewed during the meeting. Supplemental data describing each of the proposed GCR and SFR facilities will be provided by member countries by the end of January 2009.

For GCRs, five technical areas were identified consistent with the PIRT completed by the USNRC: (a) Accident Analysis and thermal-fluids (including neutronics); (b) Fission products transport; (c) High temperature (metallic) materials; (d) Graphite and ceramics; and (e) TRISO fuel. It was agreed to exclude the area of hydrogen production plant operation and interaction with the reactor facility. It was also agreed that while the pebble bed and prismatic GCR designs differ from each other, the technical areas are sufficiently broad to cover both designs. For the GCR safety issues identified, members will provide a listing of the facilities in which each of these issues can be addressed, the availability of these facilities, and their functional capabilities (important characteristics); the responses are to be provided by the end of January 2009.

For SFRs, the following preliminary technical areas were previously identified: (a) Thermal-hydraulics; (b) Fuel Safety; (c) Reactor Physics; (d) Severe accidents; and (e) Integrity of structures. It was agreed that France and Japan will provide a list of issues associated with each of these technical areas by the end of January 2009. This information will be used as a starting point to finalize the list of technical areas and related issues at the next TAREF meeting.

The general organization of the two final reports was agreed upon; assignments were made as to who will prepare the various sections of the reports. The next TAREF meeting will be held in Paris on March 2-4, 2009. The main focus of the next meeting will be: (1) For GCRs, review the material assembled for Chapters 1, 2, and 3 of the report including description of the facilities, and discuss the conclusions and recommendations to be derived from the study, and (2) For SFRs, discuss and finalize the list of technical areas and related issues, and review descriptions of the proposed facilities to address them.

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[1] Countries and number of participants: Czech Republic (1), Finland (1), France (4), Germany (3), Hungary (1), Italy (1), Japan (3), PR China (1), and USA (2).

[2] International organizations and number of participants: OECD – NEA (20, and European Comm. (1).