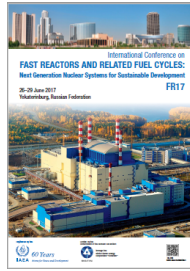


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IAEA's Coordinated Research Project on EBR-II Shutdown Heat Removal Tests: An Overview

Monday, June 26, 2017 3:15 PM (10 minutes)

A Coordinated Research Project (CRP) on “Benchmark analysis of EBR-II Shutdown Heat Removal Tests (SHRT)” was launched by the International Atomic Energy Agency (IAEA) in 2012. A series of transient tests were conducted on the EBR-II reactor at Argonne National Laboratory (ANL) to improve the understanding of thermal hydraulics and neutronics of fast reactors. Shutdown heat removal tests conducted in 1984 and 1986 demonstrated mechanisms by which fast reactors can survive severe accident initiators with no core damage. Two SHRT tests, SHRT-17 representing Protected Loss of Flow (PLOF) transient and SHRT-45R representing Unprotected Loss of Flow (ULOF) transients have been studied in the IAEA CRP.

The objectives of the CRP were to improve design and simulation capabilities in fast reactor thermal hydraulics, neutronics and safety analyses through benchmark analysis of these two important tests. At the first stage of the benchmark, ANL provided the input data on EBR-II geometry, as well as initial and boundary conditions for the SHRT-17 and SHRT-45R tests to perform “blind” calculations. At the second stage, ANL released the experimental observations and participants had the chance to discuss the difference and refine the models. Nineteen organizations from eleven countries participated in the CRP making it one of the largest CRP coordinated by the IAEA fast reactor team.

The papers provides a general CRP overview while the companion papers presented both on this session and at the poster session give the details of the EBR-II reactor design, describe the shutdown heat removal tests, the benchmark setup, results of numerical simulations, and the detailed discussion on this CRP.

Country/Int. Organization

International Atomic Energy Agency

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