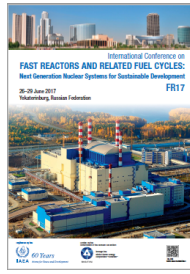


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EBR-II Passive Safety Demonstration Tests Benchmark Analyses

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In 2012, the International Atomic Energy Agency (IAEA) established a coordinated research project (CRP) on EBR-II Shutdown Heat Removal Tests (SHRT). The objectives of the CRP, which concluded in 2016, were to improve design and simulation capabilities in fast reactor neutronics, thermal hydraulics, plant dynamics, and safety analyses through benchmark analysis of two landmark tests from the EBR-II SHRT program: SHRT-17 and SHRT-45R, the most severe protected and unprotected loss-of-flow transients, respectively. Nineteen organizations representing eleven countries participated in the CRP.

The benchmark was performed in two phases. During phase 1, participants had no access to recorded data from either test. Once all phase 1 calculations were completed in February 2014, phase 2 was initiated with participants receiving the experimental data.

This paper will summarize the SHRT-17 and SHRT-45R tests and the benchmark specifications for each test that were developed for the CRP. An overview of the major simulation results from all CRP participants will be presented, and lessons learned from the CRP will be discussed.

Two companion papers in this conference will cover in detail the comprehensive analysis results for SHRT-17 and SHRT-45R, respectively. Two additional conference papers will address 1) the optional neutronics benchmark that was conducted for the SHRT-45R test and 2) the computational fluid dynamics and subchannel models that were used by some of the CRP participants.

Note: EBR-II Benchmarks CRP Invited Session

Country/Int. Organization

USA

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