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Final Results and Lessons Learned from EBR-II SHRT-17 Benchmark Simulations

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In 2012 the IAEA initiated a 4-year coordinated research project (CRP) “Benchmark Analyses of EBR-II Shutdown Heat Removal Tests”, with Argonne National Laboratory serving as the lead technical institution. Nineteen participants from eleven countries were involved in the project. The overall purpose of the CRP was to improve validation of state-of-the-art sodium-cooled fast reactor (SFR) computer codes through comparisons of the analytical predictions against whole-plant recorded test data. A secondary purpose was training of the next generation of SFR analysts and designers through participation in international benchmark exercises. Numerical simulations were performed for the two most severe experiments conducted in the 1980s during Argonne’s EBR-II Shutdown Heat Removal Tests program. The first test was SHRT-17, where a PLOF (Protected Loss Of Flow) accident scenario was performed, and the second – SHRT-45R, where a ULOF (Unprotected Loss Of Flow) scenario was performed. This paper describes the results (blind and final) of the SHRT-17 experiment simulation, findings of the CRP benchmark exercise associated with the EBR-II SHRT-17 test, improvements proposed by the participants, and the lessons learned within the project.

Note: EBR-II Benchmarks Invited Session

Country/Int. Organization

Russia

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