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Development of the U.S. Sodium Component Reliability Database

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With the advent of the use of Probabilistic Risk Assessments (PRAs) for safety analysis of Light Water Reactors (LWRs) in the 1970s, the SFR community used PRA as a tool which can demonstrate the safety of SFR designs while avoiding the pitfalls associated with an over-reliance on highly conservative safety requirements. Throughout the 1970s, 80s, and 90s, the US compiled sodium reactor specific PRA information into the Centralized Reliability Database Organization (CREDO) database, maintained by Oak Ridge National Laboratories in collaboration with the Japanese Atomic Energy Agency (JAEA). Unfortunately, the funding for the CREDO database was cut in the 1990s and the database was lost and was regained in August of 2016. This paper will describe three databases being developed at Sandia National Laboratories(SNL):

1. CREDO-I –A summary of the state of the original CREDO database;
2. CREDO-II –Early attempts by Argonne National Laboratory (ANL) and SNL to recreate the CREDO database from operational documents;
3. The future combination of the CREDO-I and CREDO-II databases into a unified database.

Country/Int. Organization

Sandia National Laboratories

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