

SIAM-xLPR* addresses piping system safety assessments.

Modeling and Simulation Group

Computational Sciences & Engineering Division



*Structural Integrity Assessments Modular – eXtremely Low Probability of Rupture

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Problem Statement:

- Funded by the U.S. Nuclear Regulatory Commission's (NRC) Office of Nuclear Regulatory Research (NRR), the SIAM-xLPR* software tool supports the NRC's initiative for developing a probabilistic software tool to address degradation mechanisms in piping systems for dissimilar metal pressurizer surge nozzle welds.

Technical Approach:

- Through its support of the Probabilistic Pressure Boundary Integrity Safety Assessment (PISA) Program, CSED is engaged in the integration of the xLPR software tool in an open source implementation integrated to the Problem Solving Environment called SIAM-PFM (Probabilistic Fracture Mechanics).

Benefit:

- CSED research results will impact NRR procedures for leak-before-break assessments, and will permit direct demonstration of compliance with the Standard Review Procedure 3.6.3 10 CFR 50 Appendix A, GDC-4.

