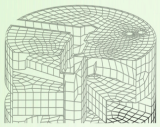
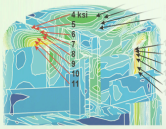




Modeling and Simulation Group

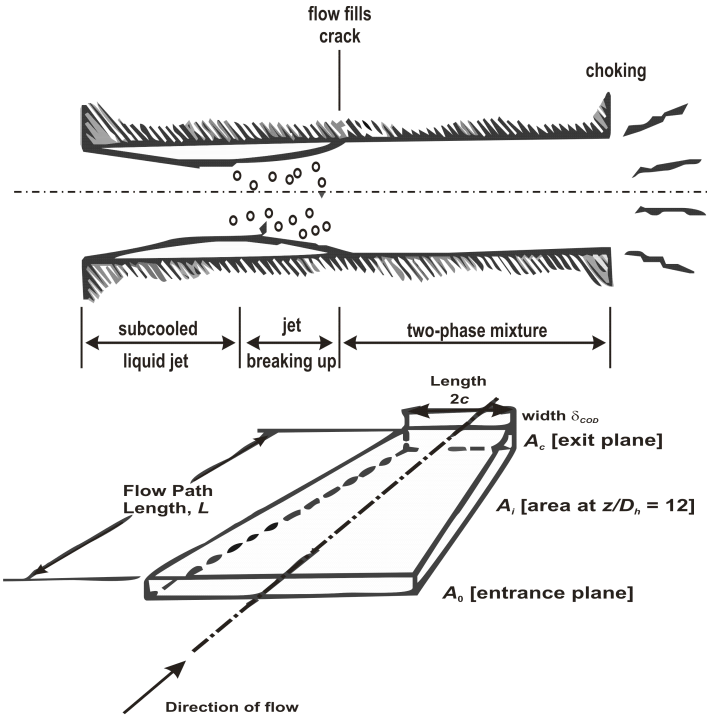
LEAPOR (Leak Analysis of Piping - Oak Ridge)

Computational Structural Fracture Mechanics Team

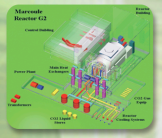
The ORNL Modeling and Simulation Group (MSG) develops sophisticated numerical solutions for a wide range of scientific, engineering, and operational applications. MSG's core competency is computational physics and engineering, and within our Computational Structural Fracture Mechanics Team we have been developing a new computer code for research in the field of computational fluid mechanics. Funded by the U.S. Nuclear Regulatory Commission's Office of Nuclear Regulatory Research, the ***Leak Analysis of Piping – Oak Ridge*** (LEAPOR) computer program determine estimates of leakage rates from postulated cracks in nuclear power plant piping systems.

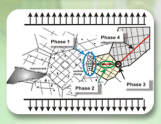
Main Characteristics

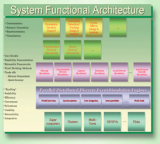
LEAPOR is a thermal-hydraulic code to calculate an estimate for the leakage rate of water escaping from a postulated through-wall crack in a piping segment of a nuclear power plant cooling water system. Preliminary cases have been tested to benchmark the experimental data presented in the open literature (e.g., Sozzi and Sutherland, 1975). The new thermal-hydraulic leakage rate code tracks the same trends in solutions and agreement with experimental data as do the results from some previous codes (Paul and Cox, 2010), and in some cases, the new code found solutions that previous codes failed to obtain due to the numeric convergence problems.



MSG is uniquely positioned to address this challenge in that it provides a confluence of theoretical modeling and high performance computing capabilities. We welcome the opportunity to discuss your potential applications and ways our computational resources can contribute to a solution.







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