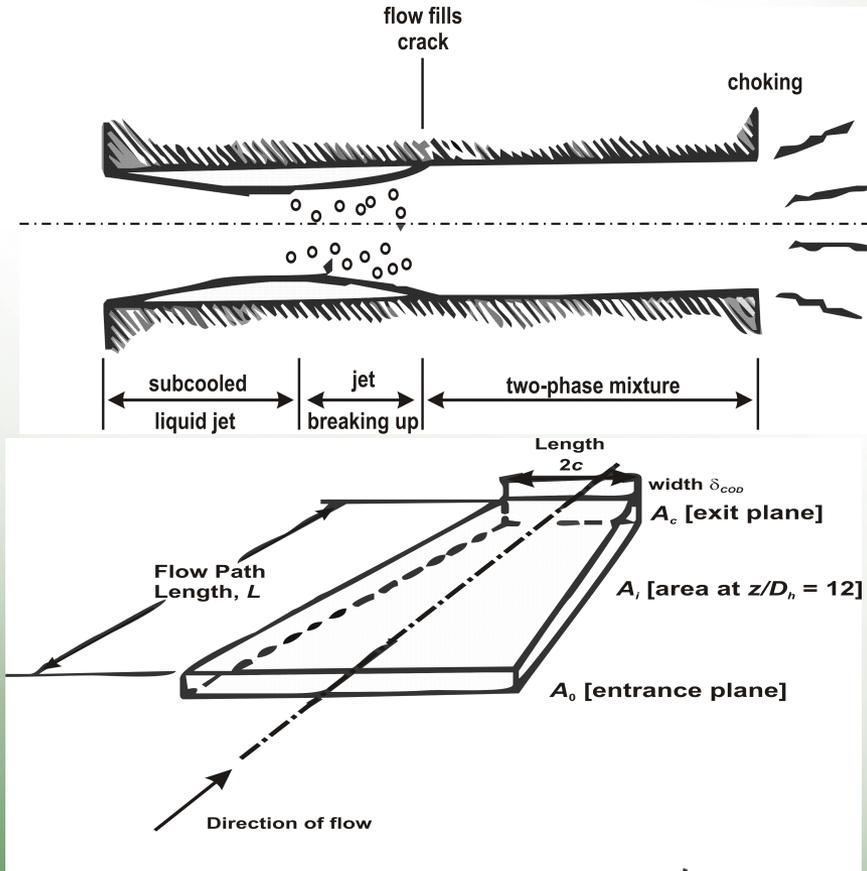


LEAPOR (Leak Analysis of Piping - Oak Ridge)

Modeling and Simulation Group

Computational Sciences & Engineering Division



Problem Statement:

- The U. S. Nuclear Regulatory Commission (NRC) requires leading-edge technical support the development a computer module that can determine estimates of leakage rates from postulated cracks in nuclear power plant piping systems.

Technical Approach:

- CSED has developed 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.
- Benefit:**
- CSED research results will make a critical contribution determine estimates of leakage rates from postulated cracks in nuclear power plant piping systems.

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