# Development of Main Steam Line Break Mass and Energy Analysis Methodology with RETRAN-3D Code

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## Abstract

The purpose of this study is to develop the methodology for the analysis of the steamline break event with mass and energy releases inside containment using the RETRAN-3D code. The current methods for the SLB M/E releases are documented using the LOFTRAN code as the analysis tool. A steamline rupture in an increased steam flow from one or more steam generator. The increased stem flow causes an increase in the heat extraction rate from the reactor coolant system, resulting in reduced primary coolant temperature and pressure and pressure transient conditions.

Three types of the MSLB M/E calculations have been carred out to confirm the effects of the methodology developed. That is, the calculations have been done using LOFTRAN with/without the entrainment effect RETRAN-3D. The results of them have been compared each other. At the viewpoint of P/T values calculated, the developed methodology has ensured additional margin which about 2~4 psia in pressure and about 10~20°F in temperature. So, it's been found out that the developed methodology using RETRAN-3D code have some contributes to EQ analysis.