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| **Title:** | **Evaluation of the Simulation of Severe Accidents in Angra 2 Using Melcor1.8.5 Code Compared with RELAP5/MOD3** |
| **Theme:** | *Severe Accidents* |
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| The purpose of this work is to develop a Severe Accident (SA) analysis in Angra 2 Nuclear Power Plant (NPP), a four loop Pressurized Water Reactor (PWR) KWU/Siemens NPP design operating in Brazil (Rio de Janeiro state, Angra dos Reis city). The analyses have been performed by the MELCOR 1.8.5 code, which allows addressing both primary system and containment phenomena, following the accident progression. The analyzed transients are: Large Break LOCA (LBLOCA) Station Blackout (SBO) and Anticipated Transients without Scram (ATWS). A general description of the Angra 2 NPP, the nodalization of the reactor primary system and the containment building nodalization developed for the MELCOR calculations are presented. The first step to be performed is to check the quality of the proposed nodalization. This will be achieved through the partial comparison with the results obtained by the analysis of the same events using code RELAP5 accident. The main objective of this comparison is done in steady state and transient calculation and it´s limited to the phase occurring before the SA development. Further on, accidents to evolve will be simulated and Angra 2 unit Severe Accident behavior will be checked aiming to act in the prevention and mitigation of these critical beyond design basis events. This improvement will be obtained by verifying the importance and need for emergency procedures reformulation, and possibly even proposing installation or equipment modification, what might improve the response of the unit on the occurrence of an accident of this magnitude.   Keywords: Severe Accident; Melcor; RELAP | |