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快报

采用非能动余热排出系统实验数据对RELAP5程序的评价

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摘要 利用非能动余热排出系统1:10原理性实验台架的稳态实验与启动实验数据，对RELAP5/MOD3.2程序进行评估。结果表明：对于本原理性实验系统，RELAP5/MOD3.2程序过低估算了蒸汽流速对蒸汽凝结换热系数的影响，因而，程序中垂直管内的蒸汽凝结换热系数偏小，计算结果与实验结果偏差大。对RELAP5/MOD3.2程序垂直管内蒸汽凝结换热模型进行了修正，修正后的计算结果与实验值基本吻合。评价结果表明：采用RELAP5/MOD3.2程序对该类型的非能动余热排出系统进行计算，需对程序中垂直管内的蒸汽凝结换热模型进行修正。

关键词 非能动余热排出；RELAP5程序；凝结换热；原理性实验

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Assessment of RELAP5 Code by Experiments of Passive Residual Heat Removal System

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Abstract The start up experiment data and steady-state experiment data, which were required from the principle experiment platform of the passive residual heat removal system that is one tenth of its actural size, were used to evaluate RELAP5/MOD3.2 code. The results show that the effect of the steam velocity on the steam condensation heat transfer coefficient in RELAP5/MOD3.2 code for this experiment system is under-estimated. So the steam condensation heat transfer coefficient in the vertical pipe is a little-small and the calculated and experimental results are totally different. Therefore, the condensation heat transfer model in the vertical pipe was modified and the calculated results were consistent to experimental results. The research result indicates that it is necessary to modify the condensation heat transfer model when it comes to the analysis of the similar passive residual heat removal system.

Key words passive residual heat removal _ RELAP5 code _ condensation heat transfer _ principle experiment

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