

反应堆工程

非能动余热排出热交换器数值模拟

薛若军; 邓程程; 彭敏俊

哈尔滨工程大学核安全与仿真技术国防重点学科实验室, 黑龙江哈尔滨150001

收稿日期 修回日期 网络版发布日期:

摘要 用FLUENT软件对AP1000非能动余热排出热交换器进行非稳态数值模拟, 研究其传热和流动特性。通过比较分析同一时刻不同位置温度场和流场的分布, 以及不同时刻同一位置温度场和流场的变化, 对该热交换器的传热过程和自然对流情况有了较深刻的认识, 有助于分析其自然循环能力, 为非能动余热排出系统的有效运行提供参考。

关键词 [非能动余热排出热交换器](#) [非稳态数值模拟](#) [自然对流](#)

分类号

Numerical Simulation of Passive Residual Heat Removal Heat Exchanger

XUE Ruo-jun; DENG Cheng-cheng; PENG Min-jun

National Defense Key Subject Laboratory for Nuclear Safety and Simulation Technology, Harbin Engineering University, Harbin 150001, China

Abstract FLUENT software was employed to simulate the temperature-field and flow-field of AP1000 passive residual heat removal heat exchanger (PRHR HX), and investigate its heat-transferring and flow characteristics. Through comparative analysis of the distributions of temperature-field and flow-field in different locations at the same time, and the variations of temperature-field and flow-field in the same location at different time, heat-transferring process and natural convection situation of PRHR HX were understood deeply. It contributes to analyze the natural circulation capacity of PRHR HX, and provides some references for the effective operation of passive residual heat removal system.

Key words [passive residual heat removal heat exchanger](#); [unsteady numerical simulation](#); [natural convection](#)

DOI

通讯作者

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [\[PDF全文\]\(17076KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)

参考文献

服务与反馈

- ▶ [把本文推荐给朋友](#)
- ▶ [文章反馈](#)
- ▶ [浏览反馈信息](#)

相关信息

- ▶ [本刊中包含“非能动余热排出热交换器”的相关文章](#)
- ▶ [本文作者相关文章](#)

- [薛若军](#)
- [邓程程](#)
- [彭敏俊](#)