

论文

高温高压水环境下传热管失效形式及防腐措施研究进展

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摘要:

分析了在高温高压水环境下, 压水堆(PWR)蒸汽发生器传热管的失效形式及原因, 总结了应力腐蚀开裂(SCC)的相关机理, 并针对奥氏体不锈钢的应力腐蚀开裂——一种严重的环境促进腐蚀开裂(EAC)形式, 分析了相应的解决措施, 特别是缓蚀剂解决措施。

关键词: 高温高压水环境 传热管

A REVIEW OF CORROSION FAILURE AND ITS PREVENTION OF STEAM GENERATOR'S TUBINGS UNDER HIGH TEMPERATURE AND HIGH PRESSURE WATER

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Abstract:

The failure types of steam generators' tubings working under the high temperature, high pressure and high purity water were analyzed, including astage, denting, fretting, IGSCC (Intragranular stress corrosion cracking), PWSCC (primary water stress corrosion cracking) etc and the relevant causes were briefly discussed. The mechanism of SCC (stress corrosion cracking), a kind of severe EACs (environmentally assisted crackings), were particularly reviewed, because of its severity in steam generator's tubings. Meanwhile, some kinds of methods to suppress the initiation and propagation of steam generator's SCC were discussed, especially, the use of inhibitors.

Keywords: high temperature and high pressure water chemistry

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