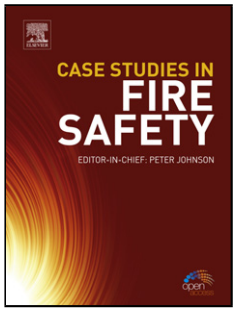


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# Stress Corrosion Cracking in the Heat Affected Zone of a Stainless Steel 308L-316L Weld Joint in Primary Water

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Highlights

- Studied stress corrosion cracking (SCC) in a stainless steel 308L-316L weld joint.
- SCC growth in the heat affected zone (HAZ) affected by chemistry of the primary water.
- SCC grew in the HAZ in off-normal water chemistry with dissolved oxygen (DO).
- No SCC growth in the HAZ in normal water chemistry with dissolved hydrogen.
- Low SCC growth rate in the HAZ likely relates to the low residual strain level.
- SCC in the HAZ in primary water with DO follows the slip-oxidation mechanism.

## ABSTRACT

Stress corrosion cracking (SCC) in the heat affected zone (HAZ) of a stainless steel 308L-316L weld joint in primary water of pressurized water reactor was investigated. Stress corrosion crack growth in the HAZ was observed in off-normal primary water chemistry with dissolved oxygen, but not in normal primary water chemistry with dissolved hydrogen. This suggests that it is unlikely a stress corrosion crack propagating in the HAZ could reach the fusion