

International Conference on Management of Spent Fuel from Nuclear Power Reactors: An Integrated Approach to the Back End of the Fuel Cycle



Contribution ID: 72

Type: ORAL

Development of SCC Resistant Canisters for Spent Fuel Storage and Transport

Mitigation of Saline Air Induced Stress Corrosion Cracking (SCC) is one of the big issues for aging management of spent fuel storage canisters made of austenite stainless steel for both long storage period and transportation after the storage. SCC is induced when three conditions, material (austenite stainless steel), saline air environment (salt deposit) and residual stress (surface tensile stress) satisfy the SCC induced conditions. As austenite stainless steel is usually used for the canister shell material mainly because of economy, it is hard to eliminate the material condition to prevent SCC. On the other hand, SCC seldom occurs during the storage period, because the amount of salt deposit on the canister shell does not usually reach the threshold value. It is worthwhile to eliminate the residual stress condition to make sure the mitigation of SCC, even if the salt deposit seldom exceeds the threshold. SCC resistant canister is developed based on the surface stress treatments at manufacturing factory and after lid welding to eliminate the residual stress condition. The specification of the SCC canister is proposed and effect of surface stress treatments to SCC are confirmed in the presentation.

Country/ int. organization

Japan

Primary author: Dr RYOJI, ASANO (HITACHI ZOSSEN CORPORATION)

Co-author: Mr MASANORI, Goto (Hitachi Zosen Corporation)

Presenter: Mr MASANORI, Goto (Hitachi Zosen Corporation)