Eddy current evaluation and CIVA simulation of denting indication for nuclear power plant steam generator tubes

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Abstract: This paper studied the eddy current evaluation and CIVA simulation of denting indication for nuclear power plant steam generator tubes. Mainly we discussed the mechanism and characteristics of denting signal and the eddy current inspection approach. The eddy current inspection data was analyzed and evaluated. It was found that the structural change of tubes causing by denting would result in stress concentration, meanwhile, it was likely to generate ID or OD stress corrosion cracking combined with the influence of temperature and susceptible materials. The cracking indication composited with denting would cause signal deformation, in order to have a better understanding of Denting, CIVA simulation method was used to further compare and analyze the simulation signal and the real deformation signal.

Keywords: Steam generator (SG) tubes; Denting; Eddy current evaluation; CIVA simulation