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Heat Treatment of Fabricated Components and the Effect on Properties of Materials <i>Shyam Gopalakrishnan, Ameya Mathkar</i>	
PVP2019-93758	V001T01A104
Effect of Bending Load on Burst Pressure of Nuclear Power Plant Steam Generator Tubes With Uniform Wall Thinning <i>Michael C. Liu, Robert J. Gialdini, Russell C. Cipolla, Chang-Hoon Ha, Min-Ki Cho, Tae-Jung Park</i>	
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Production Impact Testing Exemption for Round-Seams (Category B Welds) of Welded Pressure Vessel in ASME-Section-VIII Division-1 <i>Sreelatha Kilambi</i>	
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