

V. Krytskyi¹, O. Shuhailo¹, P. Matchenko¹, N. Krytska¹, T. Matchenko²

¹*State Scientific and Technical Center for Nuclear and Radiation Safety, Kyiv, Ukraine*

²*Kyiv Research and Design Institute “Energoproekt”, Kyiv, Ukraine*

Analysis of Methodological Framework for Computer Strength Justification of Steel Structures at Operating NPP Units

Over the last decade, new national regulatory documents on the design and assessment of the technical state of building structures, in particular steel ones, have been put into force in Ukraine to replace relevant former USSR regulations. The experience of applying new national regulatory documents indicates certain incorrect provisions, which can potentially cause catastrophic consequences in case of failure of steel building structures of corresponding facilities and(or) hazardous production capacities. The paper presents the analysis of Ukrainian regulations to check compliance of available methodologies for computer strength justification of steel structures. It is established that current regulatory documents of Ukraine do not contain a description of methodologies and procedures (formulae) with regard to calculations of steel structures on resistance to brittle fracture and cyclic crack resistance. The analysis of a number of publications was performed to define methods for the calculation of steel structures to check endurance, cyclic crack resistance and resistance to brittle fracture.

Keywords: steel structures, methodology, strength analysis, life.