Framework for the Quantitative Modelling of the European Methodology for Qualification of Non-Destructive Testing

Abstract:
The European methodology for qualification of non-destructive testing has been adopted as the basis of inspection qualifications for nuclear utilities in many European countries. According to this methodology, the inspection qualification is based on a combination of technical justification and practical trials. The methodology is qualitative in nature, and it does not give explicit guidance on how the evidence from the technical justification and results from trials should be weighted. This article discusses the quantification of the methodology. A structured and quantified approach to combine evidence from technical justifications and practical trials would provide improved transparency in the qualification process. A Bayesian framework for the quantification process is presented and examples of possibilities to combine technical justification and trial results are given. The article also identifies the areas needing further development.

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GANDOSSI Luca
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