

AN ASSESSMENT OF NDE MODELLING CAPABILITY AND ITS APPLICATION IN A NUCLEAR QUALITY RELATED ENVIRONMENT

W. Daniels, S. Wedge, J. Taggart, C. Aerts, Serco, United Kingdom

It is recognised that the modelling of NDT is playing an ever-increasing role in the design and qualification of NDT and that this is largely due to the sophistication of such models made possible by the computing power that is now available. The extent to which models can be used will depend upon their reliability and validation status and here it is important to understand the role the modelling is playing and the available evidence to support the application of the model. In the case of modelling of NDT of nuclear safety critical components, a high degree of rigour is needed in the quality of the model, its application, and the understanding of the model output in the context of the inspection.

Serco has undertaken an extensive assessment of available models for NDT including their usefulness (related to the ease of use and type of output that is generated) and the correctness of the models (the validation status) being understood through existing evidence and through collecting additional experimental data.

Within the UK, activities applied to nuclear plants are allocated a quality assurance grade according to the role of the activity in supporting the safety of the reactor. At the highest QA grades, activities require a high degree of verification of the key outputs which may include a check of the results using an independent method.

The nuclear industry places great emphasis on the competence of staff to undertake nuclear safety-related activities and this has become increasingly important for NDT modelling. The paper discusses the competences required of staff that undertake modelling to provide the required level of confidence in the model outputs.