Wesley House
Bull Hill
Leatherhead
Surrey KT22 7AH
+44(0)1372 860 840

Incorporation of Ageing in Probabilistic Safety Analysis

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Marianne L. Larsson

ABSTRACT
The following report is the final deliverable in a project investigating the effect of incorporating ageing in Probabilistic Safety Analysis (PSA). The report includes a summary of a literature review, alternative incorporation methods and results. The literature review verified that the interest in the field is rising both among researchers and regulators in the nuclear industry.

By simulating a number of components as ageing in a PSA model the change of the outputs over time are found. The results indicate that the effect of full scale incorporation may be significant. It is also found that the importance measures of components in a Fault Tree Sequence are not reliable indicators to the relative impact their ageing may have.

An argument is put forward that Living PSA may be a more suitable environment for ageing modelling than a normal PSA. This was based on the strong linkage between ageing PSA and ageing management and resulted in a preparatory step towards modelling ageing in a Living PSA. An argument is put forward that this could create a mutually beneficial model for both the ageing management and the ageing PSA programmes.

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