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Systematic Development of Scenarios Caused by Cyber-attack-induced Human Errors in Nuclear Power Plants

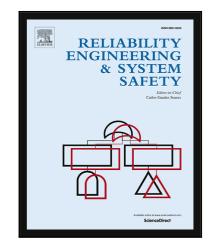
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Highlights

- To find out the consequences resulting from wrong operator actions due to a cyber-attack, a method to develop a fault tree (FT) for cyber-attacks was suggested.
- These wrong actions were obtained by analyzing an emergency operating procedure. The wrong actions of the operator were added as basic events in the existing probabilistic safety assessment model...
- The minimal cut sets (MCSs) consisting of the basic events related to cyber-attacks can be obtained by
 post processing. These MCSs represent the cyber-attack scenarios which lead to core damage without
 other random events.
- As a case study, the feed-and-bleed operation was analyzed using the developed FT and some scenarios
 which lead to core damage were derived. The results of this study can be used in a penetration test plan
 generation.

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