

Analysis of Operators' Performance under Emergencies using a Training Simulator of the Nuclear Power Plant

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Abstract

It is well known that there are many factors that affect the reliability of nuclear power plants (NPPs). Among them, human reliability has been considered one of the most important factors. Thus, not only in order to quantify human reliability but also to identify main causes that can degrade human reliability, various kinds of human reliability analysis (HRA) methods have been suggested and utilized in many countries. However, to perform a HRA more appropriately, it is needed to collect plant-specific or domain-specific human performance data especially for emergencies because they can be used to generate requisite information for a HRA. In this point of view, simulator studies under emergencies may be considered important sources to obtain human performance data.

In this study, performance of operating crews to cope with emergencies of the reference NPP has been collected and analyzed. Since the number of collected records is over 90, it can be said that extracted/analyzed results are statistically meaningful. Therefore, these analysis results can serve as a basis for building database that can be used not only for HRA input data but also for multiple purposes such as improving emergency operating procedures and developing advanced HRA methods.