

## Human Factors in Nuclear Reactor Accidents

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While many people would blame nature for the disaster of the “Fukushima Daiichi” accident, experts considered this accident to be also a human-induced disaster. This confirmed the importance of human errors which have been getting a growing interest in the nuclear field after the Three Mile Island accident. Personnel play an important role in design, operation, maintenance, planning, and management. The interface between machine and man is known as a human factor. In the present work, the human factors that have to be considered were discussed. The effect of the control room configuration and equipment design effect on the human behavior was also discussed. Precise reviewing of person’s qualifications and experience was focused.

Insufficient training has been a major cause of human error in the nuclear field. The effective training issues were introduced. Avoiding complicated operational processes and nonresponsive management systems was stressed. Distinguishing between the procedures for normal and emergency operations was emphasised.

It was stated that human error during maintenance and testing activities could cause a serious accident. This is because safety systems do not cover much more risk probabilities in the maintenance and testing activities like they do in the normal operation.

In nuclear industry, the need for a classification and identification of human errors has been well recognised. As a result of this, human reliability must be assessed. These errors are analyzed by a probabilistic safety assessment which deals with errors in reading, listening and implementing procedures but not with cognitive errors. Much efforts must be accomplished to consider cognitive errors in the probabilistic safety assessment.

The ways of collecting human factor data were surveyed. The methods for identifying safe designs, helping decision makers to predict how proposed or current policies will affect safety, and comprehensive understanding of the relationship between human factors and the accident were investigated. Finally, recommendations for prevention or minimisation of human errors were provided.