

# International Conference on Human and Organizational Aspects of Assuring Nuclear Safety –Exploring 30 Years of Safety Culture



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## Human Factors in Nuclear Reactors' Accidents

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### Synopsis

While many people would blame the nature for the disaster of the “Fukushima Daiichi” accident, the experts considered this accident to be also a human induced disaster. This confirmed the importance of the human errors which have been getting a growing interest in the nuclear field after the Three Mile Island accident. The personnel is playing 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 non -responsive management systems was stressed. Distinguishing between the procedures for normal and emergency operations was emphasized.

It was stated that the 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 recognized. As a result of this, the 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 well understanding of the relationship between the human factor; and the accident were investigated. Finally, The recommendations for prevention or minimizing of the human errors were provided.

### Country or International Agency

Egypt

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