

Knowledge degradation within routine operation practices in TRR – lessons learned

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During shift operation of Tehran Research Reactor (TRR) in June 2001, a series of malfunctions and abnormalities occurred which led to a complete stop of reactor for full investigation of why and how and other pertaining questions. Although the initiating event is believed to be a stuck rod problem which is investigated elsewhere [1], but in the course of investigation, as it was found by fact finding committee, human behavior and degradation of knowledge of operating personnel found to be of a major role in propagation of errors. In this paper, only human factors and its role creating this event would be discussed.

Among all human factors two main categories are distinguished in this study. One category is comprised of those which have a general nature and has to do with peculiarities of cultural aspects of the society and may equally contribute to other problems of different natures as well. The other one is comprised of factors specific to the TRR and conditions pertaining to this system. Both categories are discussed and analyzed in this paper in detail. Some of them which are discussed in this paper are enumerated as the following:

- I. General factors
 1. economic incentives
 2. carelessness
 3. lack of curiosity
 4. lack of questioning
 5. burden of administrative rule over scientific views

- II. Factors specific to TRR system & environment
 1. lack of independent supervision
 2. poor systematic training
 3. misinterpretation of checklists
 4. lack of access to all necessary documents
 5. persisting to continue a shift while there is a malfunction
 6. poor bookkeeping
 7. lack of clarity on job descriptions
 8. lack of proper maintenance
 9. lack of incentive to attract professionals

In short, we believe emphasizing on human aspects and promoting a sound environment is as equally important as mere academic training and well-established programs.

[1] M.Gharib et al, Risk analysis of stuck-rod accident in Tehran Research Reactor, NRC internal technical report, October 2001