

National Nuclear Safety Department Experience of Supervision over Safety Culture of BNPP-1

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The analysis of the past major NPPs accidents, TMI, Chernobyl and Fukushima Daiichi shows that causes of these accidents can be explained by a complex combination of human, technological and organizational factors. One of the findings of accident investigations and risk assessments is the growing recognition of the impact of cultural context of work practices on safety. The assumed link between culture and safety, epitomized through the concept of safety culture, has been the subject of extensive research in recent years.

The term “safety culture” was first introduced into the nuclear industry by the IAEA in INSAG-1 to underline the role and importance of the organizational factors. The objective of this paper is to conduct an assessment of some safety culture indicators of Bushehr Nuclear Power Plant (BNPP-1).

The methodology used is based on the IAEA tool, “Tool for Oversight of Safety Culture Attributes (TOSCA)”. Currently, TOSCA is being applied in various WWER NPPs in Finland, Hungary, Slovakia and Russia. The basis of this method is to collect safety culture related data by the regulatory bodies in an established procedure. These data are subject to a periodic analysis. The main objectives of this method are:

- Support regulatory bodies in supervising safety culture related issues;
- Provide a systematic approach and coherent framework for collection and analysis of these resulting observation data;
- Allow consolidation and use of observation results within regulatory framework;
- Get unbiased and valid image of licensee’s safety culture trends.

For each attribute, certain indicators have been taken into account, for example “staff Responsibilities and authorities” and “system of rewards and sanctions” are the indicators which are considered to be used to evaluate the “Everyone is personally responsible for nuclear safety” attribute. Based on this method, a questionnaire containing 38 questions was prepared. The questionnaire was completed by the BNPP-1 operating staff. Additionally, the staff was interviewed and the plant working documents were studied by the NNSD TOSCA inspection team. Subsequently, all collected data was analyzed by the NNSD TOSCA inspection team.

The results show that there has been remarkable improvement in certain safety culture indicators in the plant in recent years. In addition, some deficiencies in safety culture have been found. Finally, the effectiveness of TSOCA process was evaluated.