

Best Practices in the Scenario Development for Nuclear Security Training Organized by State Nuclear Security Technology Center

State Nuclear Security Technology Center (SNSTC) is the sole state-owned non-commercial service providing organization on nuclear security in China. SNSTC features in the comprehensive facilities on nuclear security and professional experts on nuclear security. Apart from the research and development in nuclear security, nuclear security training is also the mission of SNSTC. Since its beginning in November 2011, over 100 workshops have taken place in SNSTC covering nuclear material accounting and control, physical protection, detection of nuclear materials out of regulatory control and other relative topics.

In review of the training events from 2016 to 2018, we find out that scenario-based discussion is widely used in nuclear security training. For instance, the Regional Workshop on Counter Nuclear Smuggling on July 10-12, 2018 made use of the radioactive source theft scenario for discussion. We make the diagram to show the number of scenarios for training activities in the past three years. In terms of themes, we analyze the characteristics of scenarios based on our practices.

Scenario-based discussion increases interaction of training and combines learning with advanced tools. In a scenario which almost approaches real case, trainees actively think what they learn, use the learnt approaches to solve problems. Also, scenario can be shown in different ways by using some tools. It can be shown in printed materials, videos or other methods. Sometimes using virtual reality technology is also an efficient way.

It's of great importance to develop credible scenario for nuclear security training. Based on our good practice in scenario development, we summarize the procedures for scenario development, which can be shared for efficient nuclear security training. There are three stages for scenario development, namely, pre-scenario development, scenario development in process, and post-scenario development. We take our practice of developing scenarios for case studies focusing on different themes of nuclear security training. For the case study of scenario development, the elements of the scenario, the steps to develop the theme-focused scenario are analyzed in details. In addition, the conclusion on the principles of scenario development is drawn.

Even for the same theme of training course conducted in SNSTC, we develop different scenarios due to the differences in the background of participants, the goal of training and other factors. In this case, the comparison to two scenarios focusing on the same topic is made. We want to highlight the flexibility as well as variety of scenario development.

The evaluation of scenario development is beneficial the sustainability of nuclear security training. The effectiveness of scenario development can be evaluated by trainees, participants and peers through interview, questionnaire and on-line survey. Some charts are shown for further analysis.

The effective scenario development contributes to the success of nuclear security training. Our good practices in this regard will offers reference for our counterparts and promote the exchange of ideas among the organizations on nuclear security.

Gender

Female

State

China

Author: Ms SHI, Panpan

Co-author: Mr LIU, Xin

Presenter: Ms SHI, Panpan

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