

SNSTC's Capabilities and Practices on Performance Testing for Nuclear Security System and Equipment

The State Nuclear Security Technology Center (SNSTC) was established with the approval of the Chinese central government in November 2011. As an affiliate to China Atomic Energy Authority (CAEA), SNSTC's primary mission is to provide technical support for the government management on nuclear security, nuclear materials control, nuclear export & import control and nonproliferation; and to conduct international exchanges and cooperation. SNSTC is also the operator of China's Center of Excellence (COE) on Nuclear Security. Since the operation of COE in March 2016, SNSTC has received the ISO-9001:2015 QMS certificate and its laboratories have been certified by China National Accreditation Service for Conformity and Assessment (CNAS) and China Metrology Accreditation (CMA) in 2017. With the comprehensive testing capabilities on function/performance, environmental applicability and electromagnetic compatibility for nuclear security related system and equipment, SNSTC has completed more than 450 tests for about 100 sets of radiation detection and physical protection equipment for nuclear facilities, customs, universities and other relevant stakeholders.

As a third-party testing agency, SNSTC was commissioned by General Administration of China Customs to take performance testing and acceptance testing for the radiation portal monitors to be deployed at border ports in 2017-2018. The testing included 46 test items, covered the various aspects such as radiation detection function, radiation detection performance, environmental adaptability, electromagnetic compatibility and long-term reliability, etc. In addition, SNSTC led the technical review and in-field acceptance testing for several physical protection system upgrading projects in China, and conducted the physical protection system effectiveness evaluations for many times as requested by nuclear facility operators. Based on the works above mentioned, SNSTC also developed a series of technical documents, such as the Management Measures on Acceptance of Physical Protection Engineering, the Technical Guidance on Acceptance Test of Physical Protection System in Nuclear Facilities, the Technical Specifications for Central Control Room of Physical Protection System in Nuclear Facilities, the Technical Specifications of Digital Radiation Imaging Device used for Vehicle Access Control in Nuclear Facilities and so on.

This article will provide a briefing introduction to SNSTC's capabilities and practices on performance testing for nuclear security related systems and equipment. Some typical cases on performance testing in lab and field conditions for radiation detection equipment and physical protection systems should be demonstrated. The general objects, procedures and requirements of performance testing should be introduced. Furthermore, the necessity of and lessons-learned from performance testing, and its importance for nuclear security sustainability on national and facility levels should be discussed.

State

China

Gender

Female

Authors: Ms WANG, Shuo (State Nuclear Security Technology Center); Mr GU, Shaogang (State Nuclear Security Technology Center); Mr YANG, Changjie (SNSTC); Mr HAN, Yeliang (SNSTC)

Presenter: Ms WANG, Shuo (State Nuclear Security Technology Center)

Track Classification: MORC: Detection technology development and performance testing