

NCRP Commentary No. 22, *Radiological Health Protection Issues Associated with Use of Active Detection Technology Systems for Detection of Radioactive Threat Materials*

The Defense Threat Reduction Agency (DTRA) commissioned two commentaries from NCRP. Commentary No. 21, *Radiation Protection in the Application of Active Detection Technologies* (2011) addresses broad radiation protection issues raised by the use of active detection technology (ADT) systems while Commentary No. 22, *Radiological Health Protection Issues Associated with Use of Active Detection Technology Systems for Detection of Radioactive Threat Materials*, goes into greater technological detail to define the factors to be considered in the design and deployment of the ADT systems.

DTRA is sponsoring research into a range of technologies intended to aid in the early detection and interdiction of special nuclear material (SNM) and other radioactive materials that could represent a significant threat to homeland security. The DTRA program has the goal of developing long-range, standoff ADT systems that use radiation to stimulate detectable signatures from radioactive threat materials at ranges of 100 to 1,000 m.

While concerns about radiation exposures are important, there may be times when issues of health effects and privacy need to be carefully balanced with national security concerns. This facet increases the importance of obtaining sufficiently accurate information to justify ADT screening.

Commentary No. 22:

- examines the potential radiation doses from ADT systems to operating personnel, bystanders, and other individuals in the inspected areas; and design and operational factors that must be considered in assessing the safety and efficiency of ADT systems.
- provides recommendations on the research, development and fielding of ADT systems under consideration by DTRA to optimize the effective and safe use of these systems; address the full range of safety and health concerns associated with the deployment of ionizing radiation systems that currently exist, are under development, or may be developed in the future for the detection and interdiction of weapons of mass destruction SNM devices that could be used in acts of terrorism.
- endorses the recommendations and analyses of Commentary No. 21 (2011) of the issues of importance in the development and deployment of security systems involving ionizing radiation.
- provides recommendations related to radiation protection design considerations, engineering controls, and operational practices and procedures for the various ADT systems that are being evaluated by DTRA and its contractors. The technologies under consideration for ADT systems will employ radiation sources for detection of SNM and other radiological materials of possible use in weapons of mass destruction. It is planned for these active detection systems to be deployable at standoff ranges or in shielded configurations.

The Commentary is available from the NCRP website, <http://NCRPpublications.org>, in soft- and hard-copy formats. For additional information contact David A. Schauer, ScD, CHP, schauer@NCRPonline.org, 301.657.2652 (x20), or 301.907.8768 (fax).