

DHS Science and Technology Directorate

Office of Standards — Standards for the Performance of Radiation and Nuclear Detection Equipment

Reliable equipment is crucial following a radiological leak or terrorist event

High levels of radiation can be fatal. Unfortunately, radiation cannot be detected without specialized equipment. Reliable radiation detection equipment is needed by customs and border officials and by first responders to inspect incoming vehicles and cargo to determine if an area is safe after a radiological incident. Decision makers need this information to determine when and if to reopen buildings, neighborhoods, or other areas that have been contaminated.

The Department of Homeland Security (DHS) Science and Technology Directorate (S&T) developed standards and guidance documents for radiation and nuclear (Rad/Nuc) detection equipment to ensure the performance of this equipment is dependable to safeguard DHS personnel and first responders.

DHS S&T coordinated development of needed Rad/Nuc Detection Equipment Standards

Rad/Nuc detection instruments that are being deployed in the field represent an increasing number of applications such as sampling methods and measurement techniques for response and clean-up following a radiological or nuclear event because requirements are constantly evolving. Standards were needed to assure that the performance of the equipment meets the application needs.

In 2009, S&T, in collaboration with the DHS components, Domestic Nuclear Detection Office (DNDO), Customs and Border Protection (CBP) and U.S. Coast Guard (USGC), developed a suite of standards for the American National Standards Institute /Institute of Electrical and Electronic Engineers to ensure the reliable performance of an entire class of Rad/Nuc detectors, which includes:

- Alarming personal radiation detectors
- Hand-held instruments for the detection and identification of radionuclides
- Radiation detection portal monitors
- Spectroscopic portal monitors
- Mobile and transportable radiation monitors
- Spectroscopic personal radiation detectors

These standards and associated test methods are used by the Graduated Rad/Nuc Detector Evaluation and Reporting (GRaDER) program, a conformity assessment program. GRaDER independently evaluates commercial off-the-shelf



Rad/Nuc detection and identification technologies to improve the quality of radiation detection instruments by identifying products that comply with DHS National Standards and satisfy mission needs. GRaDER also helps federal, state, local and tribal agencies make better, more informed procurement decisions.

Guidance Following a Radiological or Nuclear Terrorist Attack

Information for decision makers in the aftermath of a nuclear or radiological terrorist event has been published as a report from the National Council on Radiation Protection and Measurements (NCRP), addressing:

- Information needed by decision makers to protect the health and safety of emergency responders and the public and to ensure security of the affected area.
- Consolidated recommendations on key decision points, the levels of radiation doses, dose rates, or concurrent hazards such as fire or chemical releases for which a response must be initiated, as well as the nature, timing, and extent of the response.

The NCRP guidance contributes to key elements for readiness against a nuclear or radiological event. The guidance gives roadmaps for temporal and spatial actions to be taken by decision makers and first responders in order to maintain each individual's health and safety when responding to a nuclear or radiological act of terrorism.

Partners:

Currently, our partners include: DNDO, CBP, USCG, and The NCRPM.



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To learn more about Rad/Nuc Detection Standards or Rad/Nuc Response Guidance, contact Philip Mattson, Director, DHS S&T ASOA, Office of Standards, at Philip.Mattson@hq.dhs.gov