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TO: All State Administrative Agency Heads
All State Administrative Agency Points of Contact
All State Homeland Security Directors

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SUBJECT: Updated Information on Radiation Detector Standards

In February 2004, the U.S. Department of Homeland Security (DHS) adopted four radiological and nuclear detector standards. The standards are designed to assist federal agencies, state and local officials, and manufacturers in procurement decisions related to radiological and nuclear detection equipment. The standards were developed in partnership with DHS Science and Technology Directorate; the Department of Commerce's National Institute of Standards and Technology (NIST); the Department of Energy's National Laboratories; the Institute of Electrical and Electronics Engineers, Inc. (IEEE); and the American National Standards Institute (ANSI). The guidelines provide performance standards and test methods, as well as minimum characteristics for four classes of radiation detection equipment ranging from hand-held alarming detectors to radiation portal monitors for cargo containers. Brief descriptions of the four standards appear below.

ANSI N42.32

Performance Criteria for Alarming Personal Radiation Detectors for Homeland Security

This standard describes design and performance criteria along with testing methods for evaluating the performance of instruments for homeland security that are pocket sized and carried on the body for the purpose of detecting the presence and magnitude of radiation. This standard specifies the performance criteria for radiation detection and measurement instruments that may be used in a variety of environmental conditions. The performance criteria contained in this standard are meant to provide a means for verifying the capability of these instruments to reliably detect significant changes above background levels of radiation and alert the user to these changes.

ANSI N42.33

Radiation Detection Instrumentation for Homeland Security

This standard establishes design and performance criteria, test and calibration requirements, and operating instruction requirements for portable radiation detection

instruments. These instruments are used for detection and measurement of photon emitting radioactive substances for the purposes of detection and interdiction and hazard assessment. The informative annexes of this standard provide reference information.

The standard covers portable instruments used for:

- Detection of radioactive substances on or in people, containers, and vehicles, including:
 - Photon (gamma- and x-ray) emitting radionuclides
 - Other types of radiation and radionuclides will be considered in other standards
- Determination of exposure rate with alarming capability for Homeland Security personnel including:
 - Fire fighters
 - Police
 - Customs and border officials
 - Additional emergency personnel

This standard also includes:

- Design and performance requirements for specific instrument types and applications;
- Type testing and certification requirements for these instruments;
- Calibration and test intervals;
- Required calibration standards; and
- Required documentation, including the instrument instruction manual.

ANSI N42.34

Performance Criteria for Hand-Held Instruments for the Detection and Identification of Radionuclides

This standard addresses instruments that can be used for homeland security applications to detect and identify radionuclides, for gamma dose rate measurement, and for indication of neutron radiation. This standard specifies general requirements and test procedures, radiation response requirements, and electrical, mechanical, and environmental requirements. Successful completion of the tests described in this standard should not be construed as an ability to successfully identify all isotopes in all environments.

ANSI N42.35

Evaluation and Performance of Radiation Detection Portal Monitors for Use in Homeland Security

This standard provides the testing and evaluation criteria for Radiation Detection Portal Monitors to detect radioactive materials that could be used for nuclear weapons or radiological dispersal devices. Portal monitors may be used in permanent installations, in temporary installations for short-duration detection needs, or as a transportable system. These systems are used to provide monitoring of people, packages and vehicles to detect illicit radioactive material transportation, or for emergency response to an event that releases radioactive material.

The four standards are available for review and download at no charge from the following webpage: <http://standards.ieee.org/getN42/index.html>.

Although manufacturers may have conducted self-testing of their products, independent third-party laboratory testing of equipment against these standards is not yet complete. Third-party testing is currently underway and should be complete in fall 2004. Following completion of these tests, ODP anticipates limiting allowable equipment under these standards to items that successfully meet test requirements. As a result, grantees should consider delaying procurement of items covered by the above-referenced standards until testing is complete and the results are published. Test results will be posted on the Responder Knowledge Base as soon as they are available at <http://www.rkb.mipt.org>.

If grantees procure these types of equipment before testing is complete, design and performance requirements identified by the standards cannot be verified.

Grantees who choose to procure such equipment prior to completion of the third-party testing should consider including provisions within their equipment procurement contracts whereby vendors/manufacturers must retrofit or replace equipment that fails to meet requirements of the standards currently undergoing testing. Furthermore, grantees should be aware that no additional ODP money will be forthcoming to replace non-standard equipment.