Office for Domestic Preparedness
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TO: All State Administrative Agency Heads
All State Administrative Agency Points of Contact

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SUBJECT: Updated Information on the Testing of Radiation Detection Equipment

BACKGROUND: The Department of Homeland Security (DHS) recently completed the first round of the evaluation of radiation detection instruments to be used by emergency responders and others involved in the prevention, detection, mitigation and recovery from potential radiological or nuclear events. The purpose of this testing was to determine the performance capabilities of equipment against criteria set out in existing American National Standards Institute (ANSI) standards. Testing against performance capability specifications is a necessary step towards ensuring that emergency responders and other homeland security personnel will be equipped with the best available technology to alert them to the presence of radioactive materials, such as those that can be used to construct radiological dispersal devices (RDD) and improvised nuclear devices (IND).

Commercially-available, off the shelf (COTS) instruments for radiological and nuclear detection were tested by the National Institute for Science and Technology (NIST) against ANSI/Institute of Electrical and Electronic Engineers (IEEE) standards (ANSI N42.32-2003, N42.33-2003, N42.34-2003 and N42.35-2004) and their associated Test and Evaluation (T&E) protocols. The results from these tests provide guidance for Federal, State and local officials to use in their evaluation and purchasing of radiological and nuclear detection equipment.

The initial test and evaluation efforts of instruments under the above described standards were performed by four Department of Energy (DOE) national laboratories (Oak Ridge National Laboratory; Pacific Northwest National Laboratory; Lawrence

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Livermore National Laboratory; Los Alamos National Laboratory), with coordination, technical management and data evaluation by the NIST. The tests were designed to determine the effectiveness of radiological and nuclear detection instruments that may be used by first responders to interdict materials and respond to radiological incidents. Each instrument was tested according to the provisions in the standards and protocols.

The types of instruments evaluated in the first round of testing (started in April 2004 and completed in February 2005) included: alarming personal radiation detectors (pagers), portable survey meters, portable radionuclide identifiers and portal monitors. Basically, an instrument passed, failed or was conditionally passed relative to a given test. In addition, a grading system was used for each test so as to be able to cross-compare results among the various instruments of a given category.

RESULTS: The test results were published in four reports:

1) "Results of Test and Evaluation of Commercially Available Personal Alarming Radiation Detectors and Pagers for the Department of Homeland Security"
2) "Results of Test and Evaluation of Commercially Available Portal Monitors for the Department of Homeland Security"
3) "Results of Test and Evaluation of Commercially Available Radionuclide Identifiers for the Department of Homeland Security"
4) "Results of Test and Evaluation of Commercially Available Survey Meters for the Department Homeland Security"

The tests results are summarized at the beginning of each report. A short description, a picture and the list of specifications for each instrument tested, as extracted from the manuals provided by the manufacturers, is provided for each instrument. At the end of each report a table lists the corresponding ANSI standard and associated T&E protocol requirements. These test results will soon be posted on the Responder Knowledge Base (RKB) website.

Although none of the radiological and nuclear detection equipment passed all of the tests, the reports provide a snapshot of how the equipment performed and how it compared to similar types of equipment subjected to the same tests. This is valuable information for emergency responders looking to acquire radiological and nuclear detection equipment. This information can assist responders in the selection of appropriate equipment based upon required performance capabilities and the environment in which it is to be used.

Given our present environment of no ANSI-compliant radiological and nuclear detection equipment, grantees should note that Information Bulletin #133 does not preclude the purchase of items not meeting these standards. Until such time as radiological and nuclear detection equipment meeting the ANSI specifications is available, the acquisition of non-ANSI compliant equipment with ODP funds is

allowable and authorized. However, grantees who procure commercially-available radiological equipment that does not meet the ANSI specifications are urged by ODP to include provisions within their equipment procurement contracts whereby vendors/manufacturers must retrofit or replace equipment that fails to meet requirements of the standards as soon as compliant equipment is available. In the meantime, ODP will continue to work with its ANSI, DHS, and other Federal partners on further radiological testing of commercially-available equipment and will keep grantees appraised of any developments related to this subject.

RESOURCES: The NIST reports will be a valuable resource to grantees in helping them to evaluate and select the most appropriate radiation detection equipment for their needs. The reports can be found on the System Assessment and Validation for Emergency Responder (SAVER) (http://saver.tamu.edu/) and the Responder Knowledge Base (RKB) (http://www2.rkb.mipt.org/) websites. The RKB website also provides the Standardized Equipment List (SEL). The SEL contains a list of generic equipment recommended by the Interagency Board (IAB) to local, state, and federal government organizations in preparing for and responding to Weapons of Mass Destruction (WMD) events. The Environmental Measurements Laboratory (EML) website (http://www.eml.doe.gov/Standards/gateway/Disclaim.cfm) is also a valuable resource that provides information on specific radiation detection equipment. Additional technical support can be obtained by contacting the help line at the Office for Domestic Preparedness (ODP) Centralized Scheduling and Information Desk (CSID) at 800-368-6498.