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Review of DHS' Progress in Adopting and Enforcing Equipment Standards for First Responders

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Preface

The Department of Homeland Security (DHS) Office of Inspector General (OIG) was established by the Homeland Security Act of 2002 (*Public Law 107-296*) by amendment to the Inspector General Act of 1978. This is one of a series of audit, inspection, and special reports prepared by our office as part of our oversight responsibilities to promote economy, effectiveness, and efficiency within the department.

This report examines DHS' progress in adopting standards for first responder equipment. It is based on interviews with employees and officials of relevant agencies and institutions, direct observations, statistical analyses, and a review of applicable documents.

The recommendations herein have been developed to the best knowledge available to our office, and have been discussed in draft with those responsible for implementation. It is our hope that this report will result in more effective, efficient, and economical operations. We express our appreciation to all of those who contributed to the preparation of this report.

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Abbreviations

AEL	Authorized Equipment List
ANSI	American National Standards Institute
DHS	Department of Homeland Security
FY	Fiscal Year
HSA	Homeland Security Act of 2002
HSGP	Homeland Security Grant Program
HSSD	Homeland Security Standards Database
IAB	InterAgency Board for Equipment Standardization and Inter Operability
IEEE	Institute of Electrical & Electronics Engineers
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
NIST	National Institute of Standards and Technology
ODP	Office of Domestic Preparedness
OIG	Office of Inspector General
OMB	Office of Management and Budget
P.L.	Public Law
PPR	Office of Programs, Plans, and Requirements
SDO	Standards Development Organization
SED	Systems Engineering and Development
SEL	Standardized Equipment List
SLGCP	Office of State and Local Government Coordination and Preparedness
SSAWG	Standards Subject Area Working Group
S&T	Science and Technology Directorate
U.S.C.	United States Code

Executive Summary

The Homeland Security Act of 2002 (HSA) established the Science & Technology directorate (S&T) as the primary research and development component for the Department of Homeland Security (DHS).[1] S&T is responsible for providing the first responder community, including state and local governments, with the technological capabilities to effectively respond to terrorist attacks, natural disasters, and other catastrophic events. To accomplish its mission, S&T adopts standards for equipment used by first responders.[2]

Adopting centralized, uniform standards for equipment assists first responders in procuring and using equipment that is safe, effective, and compatible. Standardizing communications equipment provides firefighters, police, and other emergency personnel with the ability to communicate better and coordinate their efforts during crisis situations using devices that conform to specifications that promote interoperability.[3]

We assessed S&T's progress in adopting standards for equipment and communication interoperability for first responders. Our review examined S&T operations and performance in fulfilling these efforts by assessing (1) coordination with other DHS components to ensure dissemination and awareness of adopted equipment standards; (2) the number and types of adopted standards related to first responder equipment and communication interoperability; and, (3) the procedures with which DHS ensures first responder compliance with S&T equipment standards.

[1] Public Law (P.L.) 107-296.
[2] First responders, also known as "emergency response providers," are those individuals responsible for the protection and preservation of life, property, evidence, and the environment in the early stages of a terrorist attack, natural disaster, or other large-scale emergency. Emergency response providers include "Federal, State, and local emergency public safety, law enforcement, emergency response, [and] emergency medical (including hospital emergency facilities) personnel…" (United States Code (U.S.C.), Title 6, Section 101(6).)
[3] "Communication interoperability" is the ability of first responder agencies to use communications systems, such as radios, mobile and landline telephones, and computers, to securely communicate with one another across disciplines and jurisdictions. Communication includes exchanging voice and data transmissions on demand, in real time, and using compatible equipment.

DHS has appropriately centralized the standards adoption process within S&T, and has effectively partnered with Standards Development Organizations (SDOs) and other external organizations to fulfill its standards adoption mission. However, S&T relies heavily on these external organizations because it has no authority to implement a more scientific and broadly applicable process for developing standards.

Overall, S&T has made some progress in adopting standards for equipment and communication interoperability, adopting 12 standards. However, those standards do not include any relating to interoperability or decontamination. The standards S&T has adopted are for personal protective and detection equipment. No new equipment standards have been adopted since February 2004. In addition, S&T standards infrequently apply to equipment items that DHS designates as eligible for purchase by first responders. Therefore, S&T cannot ensure that first responders consistently purchase equipment that complies with its standards.

We have identified four issues that affect S&T's ability to adopt and enforce equipment standards. S&T:

- Does not accurately track the status of standards being considered for adoption,

- Has inadequate performance measures to establish timelines for completion of its standards adoption process,

- Has no regulatory authority to compel first responders to purchase equipment that conforms to S&T standards. Therefore, it must rely on DHS' Office for Domestic Preparedness (ODP) to ensure, through management activities related to ODP's grants, that first responders procure equipment that conforms to S&T-adopted standards, and

- Is not consistently advising ODP on which categories of equipment conform to its standards.

To improve the process for adopting and ensuring compliance with equipment and communication interoperability standards for first responders, we are making four recommendations to the Under Secretary for Science and Technology to (1) ensure that the S&T standards database accurately captures all relevant data necessary for tracking the status of standards being considered for adoption; (2) determine methods by which the time required to adopt standards can be accelerated; (3) establish quantifiable performance measures to achieve more timely adoption of standards; and, (4) evaluate the DHS-sponsored equipment listings so that they conform to currently

applicable S&T standards. Two recommendations are directed for the action of the Under Secretary for Preparedness, to (1) reference DHS informational resources for equipment in all ODP grant guidance disseminated to first responder recipients and (2) mandate that all equipment purchased by first responders, using ODP grant funds, complies with corresponding standards adopted by S&T.

Background

The events of September 11, 2001, and more recently Hurricane Katrina, demonstrate the need for first responders to communicate across various disciplines and jurisdictions. It is crucial for the first responder community to be properly equipped with the most effective protective gear in order to respond to all hazard events. Further, in emergency situations, first responders offer the greatest potential to save lives.

The HSA created a national approach for protecting the homeland against potential terrorist attacks and other disasters. Pursuant to the HSA, DHS was assigned the foremost responsibility, using a full range of governmental and private partnerships, for minimizing damage and assisting in the recovery from disasters that occur within the United States.

Within DHS, S&T is the principal research and development component. S&T's mission is to organize the scientific and technological resources of the United States to prevent or mitigate the effects of terrorist attacks and natural disasters. S&T is to improve the technology and capabilities available to first responders through the adoption and dissemination of standards for equipment.[4] It fulfills its mission through its four components: the Office of Programs, Plans, and Requirements (PPR); the Office of Research and Development; the Homeland Security Advanced Research Projects Agency; and, the Office of Systems Engineering and Development (SED). PPR and SED are the offices that have primary responsibility for researching and adopting relevant standards for first responders.

Equipment Standards

PPR is responsible for adopting personal protective, detection, decontamination, and communication interoperability equipment standards for first responders. Specifically, PPR can adopt equipment standards for items such as respirators, protective body suits, footwear, gloves, personal alarm

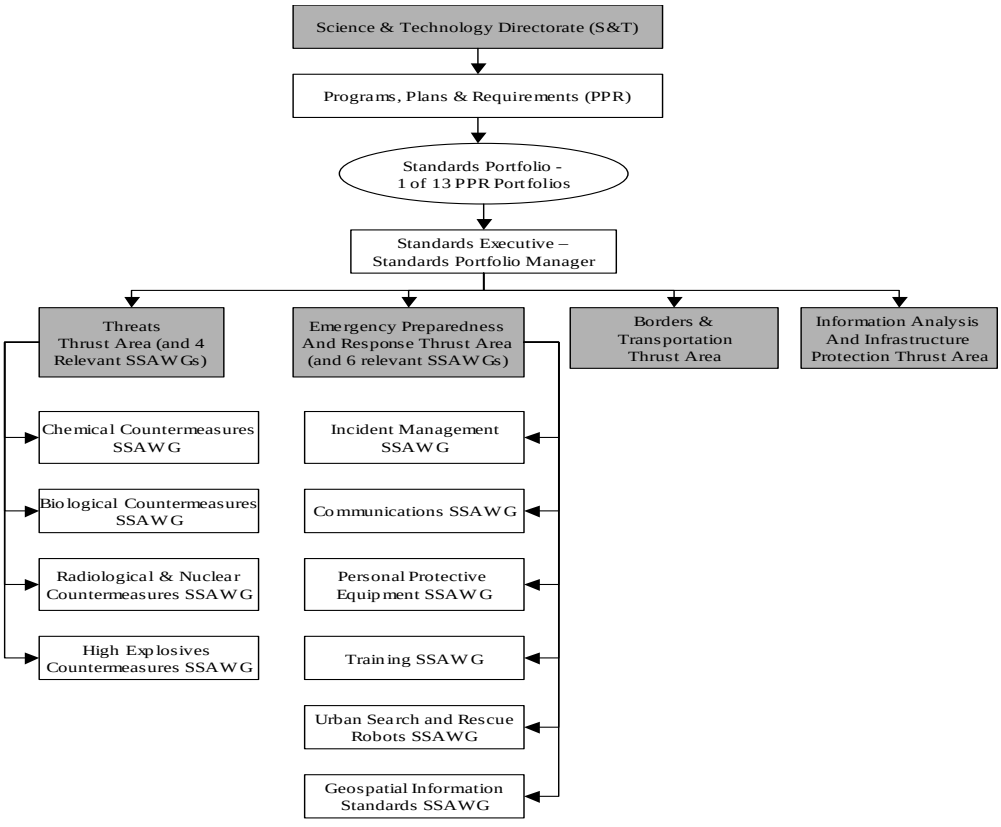
[4] Homeland Security Presidential Directive-8, "National Preparedness," December 17, 2003.

detectors, personal decontamination kits, spill containment devices, and portable and mobile radios.

PPR is composed of 13 suborganizations called portfolios, one of which is the Standards Portfolio.[5] The Standards Portfolio coordinates the development and adoption of equipment standards and appropriate evaluation methods to meet DHS and first responder needs. The Standards Portfolio Manager is responsible for setting priorities and timeframes for the research and adoption of first responder equipment standards.

The Standards Portfolio is divided into four "thrust areas," which are further divided into 19 Standards Subject Area Working Groups (SSAWGs). The SSAWGs are comprised of teams of experts and stakeholders that review and deliberate over standards in specific technical areas. Ten SSAWGs are relevant to emergency responder equipment and communication interoperability standards. The following organizational diagram outlines S&T's pertinent elements, including the ten SSAWGs under the two relevant thrust areas, which are involved in adopting equipment standards.

Diagram 1: S&T Organizational Structure for Adopting Equipment Standards



[5] S&T restructured the directorate on July 11, 2005, including the formation of the 13 PPR Portfolios.

The Standards Portfolio Manager and the SSAWGs identify homeland security needs for federal, state, and local government agencies, examine proposed standards, and make recommendations with respect to the adoption of standards by S&T.[6] The manager oversees the SSAWGs and all standards-related activities internal to S&T. The manager also serves as DHS' Standards Executive and is primarily responsible for promoting the development of appropriate DHS positions on standards; ensuring that DHS participation is consistent with the agency's mission, authority, goals, and budget; assuring that internal policies are established for managing the adoption of standards by DHS; developing processes for ongoing review and update of standards; and, instituting processes to ensure that organizational participation is properly reviewed for compliance with applicable law.[7]

Communication Interoperability

SED oversees the review and research, but not adoption, of standards for communication interoperability that apply to first responders. SED provides strategic advice to first responders in acquiring communications equipment that allows numerous jurisdictions and disciplines to maintain contact with one another when responding to terrorist attacks or other incidents.

The Intelligence Reform and Terrorism Prevention Act of 2004 requires that certain agencies, including DHS, accelerate the development of voluntary consensus standards for public safety interoperable communications.[8] In an effort to achieve this goal, the Office for Interoperability and Compatibility was established in SED to strengthen federal, state, and local partnerships to achieve interoperability for emergency preparedness and response. Launched on October 1, 2004, it provides a single resource for information about interoperability issues for first responders, including communications, equipment, and training.

Specifically, the Office for Interoperability and Compatibility is (1) establishing a comprehensive research, development, testing, and evaluation program for improving public safety interoperability; (2) identifying DHS programs that entail interoperability; (3) integrating grant guidance across all DHS grantmaking agencies that involve public safety interoperability; (4) facilitating the development and implementation of technical assistance for

[6] Each SSAWG consists of a working group chair; S&T principals; DHS components with direct interest, such as ODP; the National Institute of Standards and Technology; other federal, state, and local entities; and, private sector, university, and trade association representatives.

[7] The heads of federal agencies that have a significant interest in the use of standards are to designate a senior level official to oversee the agencies' use of voluntary consensus standards, which is discussed later in this section. ("Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities," Circular No. A-119, Office of Management and Budget, February 10, 1998.)

[8] P.L. 108-458.

public safety interoperability; (5) creating an interagency interoperability coordination council; and, (6) coordinating with DHS' National Incident Management System Integration Center.

In early 2002, the Office of Management and Budget (OMB) established the Wireless Public Safety Interoperable Communications Program, commonly referred to as SAFECOM.[9] SAFECOM is a federal program that assists federal, state, and local public safety agencies in identifying wireless interoperable communications requirements and ensures those entities can communicate and share information to effectively respond to emergency incidents. The Office for Interoperability and Compatibility oversees SAFECOM. In March 2004, SAFECOM issued the first national Statement of Requirements, which broadly defined communication requirements necessary to achieve nationwide interoperability for first responders. The Statement of Requirements will assist in the identification and development of industry standards, such as those developed by SDOs, against which product capabilities could be compared.

Standards Development Organizations

The National Technology Transfer and Advancement Act of 1995[10] directs government agencies to achieve greater reliance on voluntary consensus standards developed by SDOs.[11] SDOs are public and private organizations that develop standards and test protocols for equipment that is used in a variety of capacities, including by first responders. This Act further directs federal agencies, such as DHS, to participate in the activities of SDOs so that these organizations are consistently aware of DHS' position on standards and to consider that position in developing standards. This provision is intended to ensure that standards developed by SDOs are appropriate for use by federal agencies.[12]

OMB Circular A-119 promulgated policies on federal use and development of voluntary consensus standards and requires the activities of federal agencies that relate to the use of SDO standards be reported annually to the National

[9] SAFECOM was originally an office within the Department of Justice but was transferred to DHS in 2003.
[10] P.L. 104-113.
[11] "Voluntary consensus standards" are standards developed by SDOs that seek to eliminate the cost to the U.S. government of developing its own standards and to serve national needs. The standards are the result of general agreement within SDOs and include a process for attempting to resolve objections by interested parties. Voluntary consensus standards are distinct from "Government-unique standards," which are developed by the U.S. government for its own uses.
[12] The National Technology Transfer and Advancement Act and OMB Circular A-119 authorize agencies to use standards, other than voluntary consensus standards, when such standards are "inconsistent with applicable law" or "otherwise impractical."

Institute of Standards and Technology (NIST).[13] In Fiscal Year (FY) 2004, DHS reported that ten employees participated in SDO standards activities and that it was involved in the standards development activities of the following SDOs:

- American Society for Testing and Materials
- Association of Analytical Chemists International
- International Committee for Information Technology Standards
- Institute of Electrical and Electronic Engineers
- International Organization for Standardization/International Electrotechnical Commission
- National Fire Protection Association
- National Institute for Occupational Safety and Health

Overview of S&T Standards Adoption

Between August and December 2004, S&T implemented three management directives to formalize its standards adoption process.[14] The directives enumerate the process by which S&T reviews and adopts standards; the organizational framework for the SSAWGs; the method for coordinating with other DHS components that had standards programs; and, the procedures for working with other federal, state, and local governments, and the private sector, to facilitate broad participation in standards development and adoption. The directives promote DHS-wide and interagency cooperation and consensus in the adoption of first responder equipment and communication interoperability standards.

The standards adoption process initially involves a review of the proposed standard by the Standards Coordinator for PPR to determine its suitability for adoption as a DHS national standard.[15] If accepted by the coordinator, the proposed standard is forwarded to the Standards Subject Area Expert, who determines whether it can be adopted without submission to the SSAWGs.[16] If it is decided that the proposed standard should be adopted but requires evaluation by the SSAWGs, it is submitted to the relevant SSAWGs. After

[13] NIST facilitates the development of national standards that establish minimum performance requirements for essential equipment designed to protect first responders against chemical, biological, radiological, nuclear, and explosive hazards.
[14] "Adoption of Department of Homeland Security (DHS) National Standards," Management Directive 10600.1, August 3, 2004; "Adoption of DHS Directorate Standards As Department of Homeland Security (DHS) National Standards," Management Directive 10601, September 23, 2004; and, "Homeland Security Standards Subject Area Working Groups (SSAWGs)," Management Directive 10602, December 20, 2004.
[15] "DHS national standards" are defined as standards adopted by DHS to assist federal, state, and local officials, and manufacturers in making procurement and regulatory decisions regarding equipment and processes related to homeland security, especially equipment for the nation's first responders.
[16] Should the Standards Coordinator reject the proposed standard, the decision and reason for rejection are noted and transmitted back to the submitting entity.

the SSAWGs reach consensus on the adoption of the proposed standard, a Standards Acceptance Package is forwarded to the Standards Portfolio Manager, who forwards the completed package to S&T's Director of PPR for approval.

S&T officials said that S&T is able to adopt standards applicable to first responders, but cannot develop standards on its own because it has no authority to regulate the first responder community. The process can include the specification of performance requirements or designs, and methods for measuring product quality. A federal agency has to have explicit statutory authority to develop standards. However, S&T is not precluded from working with SDOs to develop, adopt, and publicize equipment standards.

There are various provisions of the HSA that discuss standard setting activities, but those authorities are narrow and do not apply to S&T.[17] DHS, through S&T, may issue regulations with respect to "research, development, demonstration, testing, and evaluation activities."[18] Nevertheless, S&T only has the authority to adopt equipment standards for first responders that were developed by external organizations, including SDOs.

DHS Grants for First Responder Equipment

ODP distributes federal grants to protect against threats posed by terrorism involving chemical, biological, radiological, nuclear, and explosive agents.[19] ODP distributes these grants to states, select metropolitan areas, firefighters, ports, and transit authorities first responders. In October 2004, Congress appropriated $3.7 billion to ODP, of which $3.3 billion (or 89%) was earmarked for the purchase of first responder equipment.[20]

In the first responder grant process, the governor of each state is to designate a State Administrative Agency, which is the only agency eligible to apply for ODP's HSGP funds.[21] The State Administrative Agency is responsible for obligating those funds to the state's local units of government and other designated recipients. ODP officials said the State Administrative Agencies receive DHS funds and are responsible for dispersing those funds to state

[17] Section 313 of the HSA states that: "Nothing in this section shall be construed as authorizing the Secretary or the technical assistance team established under subsection (b)(3) to set standards for technology to be used by the Department, any other executive agency, any State or local government entity, or any private sector entity." (6 U.S.C. § 313(c)(1).)
[18] 6 U.S.C. § 186(c).
[19] SLGCP was transferred to the Preparedness directorate and was renamed the Office of Grants and Training in November 2005.
[20] P.L. 108-334, Title III.
[21] *Fiscal Year 2005 Homeland Security Grant Program*, Department of Homeland Security, Office of State and Local Government Coordination and Preparedness, Office for Domestic Preparedness, Version 2.0, December 22, 2004, p. 1.

agencies and localities, including first responders. These agencies are also responsible for disseminating applicable equipment standards to first responders within their jurisdiction and for ensuring that their first responders only purchase equipment from the AEL using applicable grant funds.

In FY 2005, ODP consolidated the administration and application process for six of its grant programs, for which first responders were eligible, into one streamlined grant process.[22] The new Homeland Security Grant Program (HSGP) combined the following programs:

- State Homeland Security Grant Program
- Urban Area Security Initiative
- Law Enforcement Terrorism Prevention Program
- Citizen Corps Program
- Emergency Management Performance Grants
- Metropolitan Medical Response System

In FY 2005, ODP awarded $2.5 billion to states and urban areas under this consolidated program.

In addition to the HSGP, ODP also administers the Assistance to Firefighters Grant Program, which provides direct funding to local fire departments and is another grant program that distributes funds for first responder equipment, such as firefighting equipment and protective gear. In FY 2005, $715 million was appropriated for the program and ODP awarded 3,245 grants to fire departments and eligible private and public nonprofit organizations that totaled approximately $337 million.[23]

Authorized Equipment List

ODP publishes, manages, and maintains the Authorized Equipment List (AEL) to assist federal, state, and local public safety organizations identify and procure appropriate personal protective and communications equipment.[24] The AEL offers information to first responders on topics such as available equipment and technologies, the standards to which the equipment was

[22] In a June 2004 report submitted through the Homeland Security Advisory Council, the DHS Task Force on State and Local Homeland Security Funding recommended that the grant application process be streamlined by consolidating the six grant programs to form the FY 2005 Homeland Security Grant Program to, in part, "strengthen the coordination across the various programs and encourage[s] regional preparedness efforts."
[23] Data provided by the Office for Domestic Preparedness, Department of Homeland Security, September 9, 2005.
[24] Allowable equipment is equipment that is appropriate for purchase under the mandates of applicable grant programs. *Fiscal Year 2005 Authorized Equipment List*, Responder Knowledge Base, Office for Domestic Preparedness and National Memorial Institute for the Prevention of Terrorism, July 18, 2005. We discuss the applicable grant programs and their relationship to the AEL later.

certified, and agencies that use the equipment. The list is electronically accessible via the Responder Knowledge Base, which is a free internet resource jointly operated by ODP and the National Memorial Institute for the Prevention of Terrorism.

A cross-section of officials representing DHS, the Departments of Justice, Health and Human Services (Public Health Service), Energy, and state and local chemical, biological, radiological, nuclear, and explosive response experts assist ODP in maintaining the AEL and in identifying unallowable items that first responders should not purchase.

The AEL is composed of 21 sections that list different types of homeland security-related equipment that can be purchased by first responders, such as personal protective equipment. Four sections or equipment categories of the AEL, personal protective, interoperable communications, detection, and decontamination, correspond to those categories for which S&T is responsible for adopting equipment standards. The AEL specifies each item's unique identifier number; the permissibility of purchasing the item using funds from any DHS grant program; the name and a brief description of the item; and, a corresponding reference number to the item as listed on the companion Standardized Equipment List (SEL), where applicable. The SEL is a general list of first responder equipment developed by the InterAgency Board for Equipment Standardization and Inter Operability (IAB).[25] The list is also electronically accessible via the Responder Knowledge Base.

Unlike the AEL, the SEL is more advisory and its use by first responders is voluntary. The SEL's 11 equipment sections are equivalent to the first 11 sections of the AEL. While the SEL provides similar information on individual equipment items, it contains more items within each section and items that do not have to conform to S&T-adopted standards. Therefore, buying first responder equipment listed on the SEL does not guarantee that the items comply with S&T standards.

Results of Review

S&T has made limited progress in adopting standards for equipment and communication interoperability and its standards apply to a small percentage of the equipment items listed by DHS as eligible for purchase by first

[25] The IAB working group is a quasi-governmental organization supported by voluntary participation from various federal, state, and local government entities, as well as private organizations. IAB's mission is to coordinate standardization, interoperability, and responder safety to address any incident by identifying requirements for chemical, biological, radiological, nuclear, and explosive "incident response equipment." The IAB coordinates these entities by identifying and standardizing requirements for incident response equipment.

responders. It also has no regulatory authority to enforce first responder adherence to S&T standards and must rely on ODP to ensure that first responders procure equipment that conforms to S&T-adopted standards.

S&T Has Made Limited Progress in Adopting Standards for Equipment and Communication Interoperability

Equipment priorities for the first responder community vary, from items such as protective suits, radiation and nuclear personal detectors, and interoperable communications, to lesser priority items, such as hose couplings. DHS standards reflect these priorities. However, S&T has only adopted 12 standards for personal protective and detection equipment, and has not adopted any standards for communication interoperability or decontamination equipment. SDOs have developed many equipment standards that are eligible for adoption, but no new equipment standards have been adopted by S&T since February 2004.

S&T's limited progress is attributed to a variety of factors. For example, the 12 standards adopted by S&T reflect the priorities expressed by first responders for personal protective and detection equipment. An S&T official stated that it initially wanted to adopt national standards for this area because standards for equipment responsive to weapons of mass destruction were not prioritized by DHS' legacy agencies. In addition, law and policy dictate that S&T must rely on external organizations to conduct scientific research in developing standards.[26] Voluntary consensus standards require that affected stakeholders review the standards under consideration for adoption, which can be time-consuming. In addition, S&T does not adopt standards that are undergoing revision by SDOs or relating to equipment already covered by certain grant programs.

Adopting Equipment Standards

Homeland Security Presidential Directive-8 directs DHS to establish and implement procedures for developing and adopting first responder equipment standards that support a national preparedness capability. To achieve this objective, S&T coordinates with various federal partners, such as NIST, and external organizations such as SDOs, to facilitate and manage standards development activities that must occur outside of DHS.

[26] Various legislation and regulations govern this responsibility, including the HSA, the National Technology Transfer and Advancement Act, the Intelligence Reform and Terrorism Prevention Act, and OMB Circular A-119.

S&T's three management directives prescribe DHS' formal process for adopting standards. These processes include the establishment of the SSAWGs; intra-agency coordination among DHS components; and, DHS' partnerships with other federal, state, and local governments, as well as with SDOs. The directives also refer to the DHS National Standards Database, which "will be used to track standards through the development process, [and] maintain information on active standards…"

The SSAWGs must review the SDO-developed standards and then request modifications by the SDO, if necessary, so that the standards conform to current needs and requirements of first responders. Despite the availability of standards already developed by SDOs, S&T cannot unilaterally approve standards developed by SDOs because each standard must be reviewed for applicability and relevancy to DHS-specific needs.

In February 2004, DHS contracted with the American National Standards Institute (ANSI) to develop the Homeland Security Standards Database (HSSD). The database allows users, such as S&T and SDOs, to search for and retrieve all published U.S. and international standards, as well as draft standards under development by SDOs that are relevant to first responder equipment. According to an ANSI official, the database was completed and operational on June 1, 2005.

As indicated in Table 1, S&T has only adopted 12 of 81 (or 15%)[27] of the universe of relevant equipment standards that were developed by SDOs.[28] This is a small percentage compared to the universe of existing and relevant equipment standards that can be considered by S&T for adoption.

[27] See Appendix D for a list of the 12 standards adopted by S&T, as of March 2006.

[28] Standards in the HSSD that were already developed by ANSI-accredited SDOs, and have an American National Standards designation, were incorporated into this universe of standards. The exception is the inclusion of the three National Institute for Occupational Safety and Health standards adopted by DHS, which did not have the American National Standards designation. International standards, standards already developed by non-ANSI-accredited SDOs, or standards currently under development, were not clearly identified in the HSSD and therefore were not included in this analysis.

Table 1: Universe of First Responder Equipment Standards in the Homeland Security Standards Database[29]

	Personal Protective Equipment	Detection	Decontamination	Communications	Total
Universe of American National Standards	47	25	0	9	81
DHS Adopted Standards	8	4	0	0	12
Percentage of Standards Adopted from American National Standards Universe	**17%**	**16%**	**0%**	**0%**	**15%**

Standards Data is Not Consistently Captured

The HSSD does not consistently capture information about the status of standards, such as whether they are active, pending, or rejected, or when the SDO approved the standard. In addition, it may not report the status of the standard if it is an international standard or is under development by an SDO. An S&T official noted this database is a "work in progress" and indicated that S&T intends to assign the SSAWGs responsibility for the quality and validity of standards information in the database.

A universe of 81 standards developed by various SDOs is contained within the HSSD. These standards pertain to personal protective equipment, detection, and communications. For example, the database lists 47 personal protective equipment standards developed by six different SDOs.[30] The National Fire Protection Association (NFPA) developed 27 of these standards, five of which were adopted by S&T. The National Institute for Occupational Safety and Health (NIOSH) developed three of the personal protective equipment standards, all of which were adopted by S&T. For detection standards, the database lists 25 standards developed by three SDOs. Of that number, the Institute of Electrical and Electronics Engineers (IEEE) developed the four

[29] Personal protective equipment standards include the following categories: personal protective equipment and urban search and rescue robots. Detection standards include the following categories: biological threats - detection and prevention; chemical threats - detection and prevention; and, radiological and nuclear - detection and prevention. Decontamination standards are represented by the chemical threats – decontamination category. All standards included in this analysis of the HSSD, with the exception of the three National Institute for Occupational Safety and Health standards, have an American National Standards designation. In addition, Communications standards do not include standards currently under consideration by SAFECOM.

[30] Five are ANSI-accredited SDOs, including the National Fire Protection Association. The other organization, the National Institute for Occupational Safety and Health, which is a federal agency that is a component of the Department of Health and Human Services, is not ANSI-accredited.

standards that were adopted by S&T. This highlights the existence of standards developed by various SDOs that are available for adoption by S&T.

In August 2005, S&T developed a separate database for its internal use to compensate for the deficiencies in the HSSD. An S&T official said its database is also the primary means by which S&T tracks equipment standards that have been submitted, are pending, or adopted. It contains standards that were adopted by S&T, already developed by SDOs, and under development by SDOs. It also contains fields that indicate the status of the standards as either draft (submitted for approval) or final, but provides minimal information about the status of standards currently in development. For example, it only lists the date the standards project was initiated; no further information, such as dates the SSAWGs completed their review, is provided.

The database lists 65 standards that were already developed or under development by SDOs, of which 39 are relevant to personal protective, detection, and decontamination equipment.[31] Of the 39 standards, 26 are already developed standards and 13 are under development. The 26 developed standards consist of 24 personal protective and 2 detection equipment standards. Although the 26 developed standards are in S&T's internal database, it has not formally considered them for adoption.[32] In addition, the database does not list communications equipment standards under consideration by SAFECOM. This database is an important recordkeeping resource to track S&T's process for adopting standards and for assigning proposed standards to the SSAWGs. However, it is incomplete, which diminishes its utility in facilitating S&T's progress in adopting standards.

Recommendation

We recommend that the Under Secretary for Science and Technology:

1. Ensure that S&T's internal standards database accurately captures data necessary to track the status of standards being considered for adoption.

S&T Standards Apply to a Small Percentage of Items on DHS' Authorized Equipment List

S&T standards apply to a small percentage of the equipment items listed in DHS' AEL. Of the 178 equipment items on the list that are relevant to

[31] The S&T database of 65 standards includes 20 standards that are listed in the HSSD. The 65 standards do not include the 12 standards for first responder equipment that were adopted by S&T.
[32] In November 2005, the relevant SSAWG met to consider these 24 personal protective equipment standards, but did not formally vote on adopting any of these standards.

personal protective, detection, decontamination, and communications equipment for first responders, only 29 items (or 16%) are designated as complying with S&T-adopted standards. Eight items in the AEL personal protective equipment section were not included in the 29 S&T-compliant items, though they comply with a 2005 edition of an NFPA standard, which S&T has yet to adopt.

In the AEL detection equipment section, four items listed refer to ANSI standards adopted by S&T. These four items do not comply with S&T standards and were also not included in the 29 compliant items because there is presently no commercially available equipment complying with the ANSI standards. As of May 2005, commercially available detection equipment had not passed applicable tests to comply with ANSI radiological and nuclear detection standards.[33] Nonetheless, first responders can purchase these four items.

The small percentage of items in the AEL that comply with S&T standards is indicative of the need for S&T to adopt more standards. First responders regularly access the list, which contains equipment that should conform to S&T standards. Attaining the goal of compatibility and interoperability among the first responder community is promoted by having more equipment items that comply with S&T-adopted standards.

Communication Interoperability Standards Not Adopted

S&T has not adopted any standards for interoperable communications equipment and it appears that the SSAWGs are not formally considering the adoption of any communications standards. However, S&T has instituted a formal agreement with NIST specifying procedures for collaboration on wireless communication technologies. In addition, SAFECOM has established cooperative agreements with other federal agencies and offices, such as NIST and ODP, to continue support for existing standards development initiatives.

The Office for Interoperability and Compatibility oversees the SAFECOM program and the communications SSAWG serves in an advisory role regarding policy development and adoption of interoperable communications standards. The program seeks to identify communication requirements for the first responder community and to recommend standards and solutions to meet those requirements. SAFECOM relies on the efforts of SDOs and other external organizations, such as NIST, to research and develop interoperable

[33] First responders procuring non-ANSI compliant equipment are advised to consider including provisions in their procurement contracts stating manufacturers must retrofit or replace equipment once compliant equipment becomes available.

communications standards. NIST oversees and provides scientific information for the development of standards that have the broadest effect on interoperability.[34] SAFECOM officials meet regularly with working groups comprised of public safety organizations and SDOs to discuss the development of new standards.

Specifically, SAFECOM is supporting the standards development activities for Project 25. The Project 25 system has eight "interfaces," or areas, for which communications standards will be developed. Each interface defines the signal and messages that allows the products of one manufacturer to interoperate with products of other manufacturers. These interface standards are part of the Project 25 suite of standards that is being developed by the Telecommunications Industry Association. Project 25 will ultimately lead to an interoperable digital wireless communications system. The Project 25 standards will allow for "backward compatibility," meaning that new equipment, which is compliant with Project 25 standards, is compatible with existing equipment, such as digital and analog systems. Such standards will assist DHS in its efforts to achieve communication interoperability for first responders.

While only one of the eight interfaces comprising Project 25 is fully developed and available for adoption, S&T has not adopted it. The single completed interface for Project 25 is the Common Air Interface. This interface allows portable handheld and mobile digital land mobile radios built by different manufacturers to be able to communicate with one another, assuming they operate within the same band. However, S&T has not adopted this standard because it is incomplete and only a single manufacturer builds Project 25 radio infrastructure.

According to the Office for Interoperability and Compatibility's Director, three additional Project 25 interfaces are required before multiple manufacturers can build compliant infrastructure.[35] It would be appropriate for S&T to adopt Project 25 after the interfaces are completed, which the director anticipated will occur by the end of 2007. SAFECOM is also working with NIST to implement a conformity assessment program to ensure that future Project 25 systems comply with its parallel standards.

[34] In FY 2005, S&T entered into an agreement with NIST's Office of Law Enforcement Standards and provided $6.5 million for the development of equipment and communications system standards, as well as for testing of standardized equipment. These standards will be designed to allow *land mobile* radio systems from different manufacturers to be interconnected.

[35] These three Project 25 interfaces are the Inter-RF Subsystem Interface, the Console-to-Console Interface, and the Fixed Station Interface.

In the absence of S&T-adopted communication interoperability standards, S&T has recommended that Project 25 standards be the preferred standards for first responders seeking federal funds for interoperability grants. However, abiding by these standards currently is not mandatory for first responders. The resolution of communication interoperability issues continues to be a problem for the first responder community. It is imperative that S&T continues its progress towards adoption of communication interoperability standards.

Standards Adoption Performance Measures are Needed

We reviewed relevant laws, regulations, and policies, which apply to the S&T standards adoption process, and determined that S&T has no specific, quantifiable performance measures for adopting standards. One directive, "Adoption of Department of Homeland Security (DHS) National Standards," contains applicable performance measures. However, they are vague, are not quantified, and do not prescribe performance goals for completing the S&T standards adoption process.[36] The directive only applies to the appropriate S&T subject matter expert in establishing an unspecified "completion date" for the relevant SSAWG to finalize its review of the proposed standard. The directive states that the SSAWG should review the proposed standard "on a timely basis," which is also not defined. An S&T official confirmed that S&T has not established any timeframes for reviewing equipment standards and reviews are conducted depending on priorities and on a case-by-case basis.

Standards adoption performance measurement criteria would allow S&T to track its progress in fulfilling its organizational goals and mission, and would provide officials with information on which to base organizational and management decisions. Performance measures should create incentives for continuous improvement in organizational processes, identifying performance gaps, and setting goals for corrective action. When developing performance measures, the measures should be clear and provide quantifiable data with which to evaluate S&T's achievement of its mission and objectives. The absence of established performance measures inhibits timely adoption of standards for use by the first responder community.

Recommendation

We recommend that the Under Secretary for Science and Technology:

[36] "Adoption of Department of Homeland Security (DHS) National Standards," Management Directive 10600.1, August 3, 2004.

2. Establish specific, quantifiable performance measures for the S&T standards adoption process that will ensure more timely adoption of standards for use by the first responder community.

Standards Adoption Process Hindered by Reliance On External Organizations

Nongovernmental and governmental entities must be involved in the development and adoption process of S&T standards. Partnerships with external organizations, such as SDOs, are mandated and essential to S&T's adoption of standards. However, the nature of the voluntary, consensus-based process limits the availability and timeliness of standards for adoption by S&T. As a result, the efficiency by which S&T adopts standards is hindered. An S&T official said that SDOs routinely take five to eight years to develop equipment standards. Furthermore, participation in SDO working groups is voluntary, as members hold other positions and have primary responsibilities outside of the working groups.

S&T's standards adoption process is administrative. No scientific research or the development of technical or performance requirements for first responder equipment are conducted in the Standards Portfolio. Instead, S&T relies on SDOs and other external organizations to fulfill those duties. The SSAWGs identify homeland security vulnerabilities where standards are needed, coordinate with SDOs to develop the necessary standards, and propose existing standards for adoption. The SSAWGs are critical to managing the development of standards by SDOs for DHS purposes. However, after SDOs develop and publish standards, S&T cannot immediately adopt them because the published standards must be proposed by the SSAWGs and must be reviewed by other DHS components for relevancy and applicability.

Current Process Is Not Effectively Addressing First Responder Needs

By December 2004, DHS had issued three management directives to formalize its standards adoption process. Specifically, the directives establish a centralized structure within S&T for receiving, reviewing, and adopting standards; provide guidance for adopting standards currently in use by DHS components; and, direct the structure, procedures, and activities of the SSAWGs in identifying and adopting DHS standards.[37] An S&T official said the directives encapsulate the entire S&T standards adoption process. Although the directives established a centralized process for the review, adoption, and revision of submitted standards, the 12 adopted thus far did not

[37] The first formal SSAWG, for Training, became operational in April 2003 prior to the initiation of the first directive. Subsequent relevant working groups were formed after the first directive was issued in August 2004. The SSAWG that most recently became operational is the personal protective equipment SSAWG; the last relevant SSAWG for high explosives became operational in February 2006.

undergo the process described in the directives.[38] The first directive became effective in August 2004, which was six months after the 12 standards were adopted by S&T and no new standards have been submitted for consideration under its centralized process.

For example, the eight personal protective equipment standards were adopted based on the recommendation of the IAB. Of the eight standards, IAB approved the five NFPA standards and one NIOSH chemical, biological, radiological, and nuclear standard, for Open-Circuit Self-Contained Breathing Apparatus, in September 2002. However, IAB did not formally announce the adoption of these standards until May 2003. The other two remaining personal protective equipment standards were issued in April 2003 and October 2003. Subsequently, IAB formally announced the approval of these remaining two standards in late 2003. It took DHS less than one year to adopt these eight personal protective equipment standards following IAB's approval of the standards.

The four radiation and nuclear detection standards were developed by IEEE working groups, comprised of ANSI and IEEE members, which were established in cooperation with DHS.[39] In January 2004, the working groups published these standards and S&T adopted them one month later. According to an S&T official, the 12 total adopted standards were vetted through the issuance of a "press release," circulated throughout DHS, which allowed DHS components to comment on the standards prior to their formal adoption by S&T in February 2004.

In November 2005, the relevant SSAWG was established and met for the first time since the issuance of the directives to consider personal protective standards in S&T's internal database. Although the SSAWG did not vote on any of the standards, it will continue to review and consider them in future meetings. However, this SSAWG did not meet until almost a year after the last directive was issued, even though effective, standardized personal protective equipment is imperative to protect the safety and health of first responders.

An S&T official said that S&T's standards adoption process seeks to link equipment standards with DHS grant programs. S&T indicated that if first responder equipment covered under a current grant program complies with existing standards, whether S&T-adopted or not, then S&T should not adopt standards for that equipment. However, as we discuss later, DHS grant programs are the primary mechanism for ensuring that first responders

[38] We requested information relevant to 3 of the 12 S&T adopted standards to review S&T's evaluative process. We were provided data outlining the key milestones for the 12 standards but no further documentation was made available.
[39] The IEEE working groups define technical guidelines to which detection equipment must conform.

uniformly purchase equipment that complies with S&T standards. Therefore, S&T should adopt standards for equipment that is eligible for purchase using DHS grant funds.

An IAB official said, "First responders are dependent on DHS to adopt standards because state and local responder efforts are fragmented." However, he acknowledged that standards development is a time-consuming process and affirmed that producing equipment based on ineffectual standards is not practical. Standards promote consistency in facilitating compatibility between multiple pieces of equipment and S&T-adopted standards assist first responders in making equipment procurement decisions. However, first responders need immediate guidance on which equipment to purchase and S&T must accelerate the process by which it reviews and adopts personal protective, detection, decontamination, and communication interoperability equipment standards. The issuance of three applicable directives has not improved the standards adoption rate.

Recommendation

We recommend that the Under Secretary for Science and Technology:

3. Determine appropriate methods for amending the relevant Management Directives in order to identify specific timeframes for process objectives, monitor the progress of equipment standards adoption, and adjust the process, as needed, to effectively adopt equipment standards.

DHS Needs to Ensure First Responder Compliance with S&T Equipment Standards

S&T has limited authority to ensure that first responder agencies purchase equipment that complies with S&T-adopted standards. Further, S&T must rely on ODP to enforce adherence to those standards.

<u>DHS Grant Programs Serve as the Means for Standards Compliance Enforcement</u>

S&T officials said that it has no authority to promulgate regulations that mandate the purchase of specific, qualifying equipment by first responders. The HSA does not provide S&T with explicit authority to regulate purchases of equipment by first responder agencies. S&T may issue regulations with respect to "research, development, demonstration, testing, and evaluation activities;" however, this authority does not apply to S&T's activities related

to adopting standards for first responder equipment.[40] Therefore, its standards activities are limited to working with SDOs to develop, adopt, and publicize applicable equipment standards.[41]

Conversely, other federal organizations, such as the Occupational Safety and Health Administration, have the statutory authority to prescribe and enforce standards upon governmental and private entities. The Occupational Safety and Health Administration promulgates regulations that affect workplace safety or health, such as prescribing standards on workplace conditions.[42]

We did not determine the impact of delegating regulatory authority to S&T. This would require evaluation of the resources and operations required to make S&T a regulatory agency and the needed legal authorities, similar to other federal regulatory agencies. However, potential exercise of regulatory authority by S&T might provide the ability to mandate that first responders purchase equipment that complies with S&T standards, regardless of the type of funding used.

Since first responder grant recipients are required to abide by federal grant purchasing laws and regulations as a condition of award, grants administered by ODP appear to be the only method by which compliance with S&T-adopted standards can be enforced. Since ODP manages the first responder grant process, it is also responsible for ensuring that equipment purchased by first responders with DHS funds adheres to specific equipment standards.

Specific Grant Guidance is Essential

DHS' ability to direct the specifications for equipment purchases depends on whether federal funds are used. Federal law governing ODP grantmaking states that it has the primary federal responsibility for "… directing and supervising terrorism preparedness grant programs of the Federal Government … for all emergency response providers."[43] In addition, funds appropriated by the U.S. government and distributed to first responders can only be used for their intended purposes, in this case conforming to DHS equipment standards.[44]

[40] 6 U.S.C. § 186(c).
[41] S&T follows the guidance set forth in OMB's Circular A-119 and the three directives that give S&T the authority to direct DHS' "overall effort of working with [SDOs] to establish voluntary consensus standards" for S&T to adopt.
[42] 29 U.S.C. § 655.
[43] 6 U.S.C. § 238(c)(3).
[44] 31 U.S.C. § 1301(a) and Homeland Security Presidential Directive-8, "National Preparedness," December 17, 2003. DHS appropriations for FY 2005 are in P.L. 108-334.

To promulgate this authority to first responders, the FY 2005 HSGP Guidelines state, "Applicants must familiarize themselves with the requirements and restrictions of the Program Guidance for FY05 HSGP" and must accept the Guidance as "binding."[45] However, first responders can use non-federal funds to purchase equipment that does not comply with DHS equipment standards. This intergovernmental funding reality limits the extent to which DHS can ensure that first responders purchase equipment that complies with DHS standards and priorities.[46]

First responder recipients are informed through ODP grant guidance that they are required to purchase qualifying equipment listed on ODP's AEL. First responder equipment listed on the AEL is intended to comply with applicable S&T standards. According to an ODP official, the first responder community uses the AEL extensively. More than 180,000 registrants used the AEL within the first four months of its operation.

The requirement that first responders purchase equipment listed on the AEL is affirmed in the HSGP grant guidance. The grant guidance, received by all eligible first responder applicants who apply for relevant federal funds, states that, "Allowable equipment categories for FY05 HSGP" are listed on the AEL. The grant guidance further describes the function and content of the AEL website and its relation to the SEL.

The Assistance to Firefighters Grant Program guidance, however, does not contain any language mandating that first responders purchase equipment listed on the AEL. No reference is made to the AEL in the program's guidance. An ODP official verified that the Assistance to Firefighters Grant Program guidance "does not require grantees to purchase from ODP's AEL." Since this program's grants are for basic equipment requests, its guidance does not explicitly mandate that grantees purchase equipment that complies with S&T-adopted equipment standards. Instead, guidance requires recipients to comply with standards, such as those developed by NFPA, which have not necessarily been adopted by S&T.

The Assistance to Firefighters Grant Program guidance provides that fire department first responders, who receive "Federal preparedness funding," must buy equipment that is also compliant with the National Incident Management System "as a condition for receipt of Federal funds."[47] Adoption of this program by states and localities became a requirement in FY 2005.

[45] *Fiscal Year 2005 Homeland Security Grant Program*, Department of Homeland Security, Office of State and Local Government Coordination and Preparedness, Office for Domestic Preparedness, Version 2.0, December 22, 2004, p. 16.
[46] Homeland Security Presidential Directive-8, "National Preparedness," December 17, 2003.
[47] "Assistance to Firefighters Grant (AFG) Program," *2005 Program Guidance for the Fire Prevention and Safety Grant*, Department of Homeland Security, Office of State and Local Government Coordination and Preparedness.

Compliance with the National Incident Management System includes DHS activities in providing "Federal preparedness assistance through grants…"[48] However, the Assistance to Firefighters Grant Program guidance does not refer to any specific resource to assist first responders in determining which equipment is allowable and compliant. The guidance also states that applicants will be more competitive if they demonstrate the purchase of equipment towards "voluntary compliance with national standards."[49] However, the guidance does not specify the standards with which applicants should comply.

The SAFECOM Program developed "Recommended Federal Grant Guidance" to coordinate the way in which funding is allocated and to further interoperable communications.[50] This guidance outlines eligibility requirements for first responders to receive grants, the purposes for which grant funds can be used, and guidelines for implementing an interoperable wireless communication system. It also requires first responder agencies to describe plans for achieving improved interoperability in applying for federal grant funding that entails communications equipment.

However, adhering to the SAFECOM grants guidance is not mandatory for first responders. The guidance provides that all new systems procured by first responders to achieve interoperability should be Project 25 compatible.[51] However, this guidance does not preclude funding of non-Project 25 equipment when other solutions are readily available. The SAFECOM Director noted that producing the grants guidance was an "interim method" to encourage first responders to abide by communication interoperability standards until they are adopted. Provisions that mandate adherence to communication interoperability standards are not currently included in ODP grants guidance. However, ODP has included SAFECOM's grant guidance in its grants program guidance related to communication interoperability.

The HSGP guidelines summarize the SAFECOM grants guidance in an appendix. However, the Assistance to Firefighters Grant Program guidance does not mention SAFECOM or delineate specific standards for interoperability compliance. However, HSGP guidance does state that equipment that promotes interoperability among neighboring jurisdictions may receive additional consideration in assessing the applicant's eligibility for its funds. It is not specifically mentioned in the Assistance to Firefighters

[48] Homeland Security Presidential Directive-5, "Management of Domestic Incidents," February 28, 2004.
[49] "Notice of Guidance," Assistance to Firefighters Grant Program, Office of State and Local Government Coordination and Preparedness, Office for Domestic Preparedness.
[50] "Recommended Federal Grants Guidance, Public Safety Communications & Interoperability Grants," SAFECOM, Department of Homeland Security, November 2004.
[51] Ibid., p. 3.

Grant Program; however, an SLGCP official said that ODP reviews all grant applications to assess conformity to Project 25 in the SAFECOM guidelines.

ODP grants are the primary means for DHS to achieve compatibility and interoperability among first responder equipment. However, DHS has marginal authority to mandate adherence to S&T standards particularly if first responders do not use federal funds to purchase equipment.

Recommendations

We recommend that the Under Secretary for Preparedness:

4. Ensure that the AEL is designated as a source of allowable first responder equipment in all ODP grant guidance disseminated to first responder recipients.

5. Mandate, through grant guidance and enforcement monitoring, that all equipment purchased by first responders using funds from ODP grant programs complies with corresponding standards adopted by S&T.

ODP Grants Compliance Activities

ODP monitors the expenditures of its grant funds by first responders through Preparedness Officers, who are stationed in Washington, DC. ODP employs 36 officers to serve as its liaisons with the first responder community. The officers are assigned to geographic regions of the United States - eastern, central, or western. Within each geographic region, Preparedness Officers cover every state and eligible urban area.

Two review methods are applied to ensure that first responders comply with ODP grant requirements. Each recipient is required to undergo both types of reviews annually.

1. Annual Monitoring Visit: Preparedness Officers conduct annual monitoring visits to each state's State Administrative Agency or eligible urban areas. Visits consist of assessing the recipient's operations, including a review of files for grantees that received ODP funds. ODP analyzes the recipients' progress in attaining the goals in the applicable State or Urban Area Homeland Security Strategies. ODP usually examines a sample of purchase orders and receipts in the grant files. For purchases of equipment, the Preparedness Officers determine whether the equipment bought conforms to the grant guidance. According to an SLGCP official, should grantees submit plans stating they will buy equipment, ODP ascertains the equipment's whereabouts and assesses its

program value to the recipients' security strategy. The Preparedness Officers then complete monitoring visit reports that have to be approved by ODP's Assistant Director.

2. Desk Review: From their Washington, DC headquarters, Preparedness Officers conduct an annual desk review of the relevant grant documents for first responder recipients. The officers review the recipient's records, which include grant applications and financial status reports, and also determine the actual expenditures of grant funds by the recipients.

A Preparedness Officer also said that ODP conducts a review that compares the equipment purchases made by recipients to what the recipients stated they intended to buy in their security strategy. Examining recipient's budget detail worksheets often satisfies this review.

In addition to the Preparedness Officers' activities, ODP tracks the use of grant funds by requiring first responders to submit periodic grant reports such as an Initial Strategy Implementation Plan, which is due 60 days after the award date, and a Biannual Strategy Implementation Report, due at six-month intervals over the period covering each award. Both plans are designed to outline how each recipient is using ODP grants "to meet the strategic goals and objectives outlined in the State and Urban Area Homeland Security Strategies." On January 6, 2005, ODP launched the Grants Reporting Tool; an internet application intended to collect submissions, which includes standard reporting formats for the required grant reports. All submissions must be transmitted through the Grants Reporting Tool.

S&T Is Not Adequately Monitoring the Authorized Equipment List

S&T is not consistently advising ODP as to which equipment on the AEL conforms to S&T equipment standards and has not implemented any procedure to monitor and review the AEL. According to an S&T official, ODP is aware of adopted standards and that the AEL links those standards with its corresponding equipment items.[52] ODP is notified that the Standards Portfolio has adopted a standard through the SLGCP Standards Coordinator, which is the formal method for S&T to notify ODP of newly adopted standards. While ODP is informed when S&T adopts a standard, S&T has no similar procedure for ensuring that equipment on the AEL corresponds to its standards. In addition, none of the applicable or draft agreements between S&T and SLGCP delineate any procedure or method for consistently reviewing informational resources, such as the AEL, which are common to both components.

[52] ODP participates in the S&T SSAWGs, as authorized by DHS Management Directive 10601. ODP also participates in the IAB.

ODP has oversight and maintenance responsibility for the AEL. The list is the primary means by which the first responder community accesses information on DHS equipment standards and allowable equipment purchases. Consistent monitoring and reviews of the AEL by S&T would better ensure that equipment designated on the list complies with its equipment standards.

Recommendation

We recommend that the Under Secretary for Science and Technology:

6. Mandate, through program guidance and standard operating procedures, that S&T systematically monitor and review the AEL to ensure that all listed equipment conforms to currently applicable DHS standards.

S&T Has Established a Centralized Process to Adopt Equipment Standards

Although S&T has not applied its process to any DHS equipment standards, it has established centralized procedures to coordinate with SDOs and other external organizations to fulfill its standards adoption mission.

Coordination Within DHS

S&T coordinates the adoption of equipment standards with other DHS components, a process that was formalized by the issuance of the three directives. DHS components participate within the SSAWGs to review proposed equipment standards and make recommendations for adoption by S&T. DHS components are well represented on the SSAWGs. As of July 20, 2005, there were 177 listed members of the 10 relevant SSAWGs, and 46 of the members (or 26%) were from DHS components external to S&T.

S&T has entered into several formal agreements with DHS components to define specific roles and responsibilities in coordinating the adoption of equipment standards for first responders. One significant, formalized agreement specifies that SAFECOM will develop grant guidance that is "consistent with SAFECOM objectives."[53] ODP will provide "grants that facilitate the procurement of interoperable communications equipment and

[53] Memorandum of Agreement within the Department of Homeland Security between the Science and Technology Directorate and the Office of State and Local Government Coordination and Preparedness, August 9, 2004.

that incorporate SAFECOM guidance." Another significant agreement[54] creates the understanding that SAFECOM and DHS' Chief Financial Officer will provide services, personnel, equipment, and funds to support the development and implementation of federal, state, and local programs under SAFECOM's E-Government Initiative.[55]

S&T and SLGCP are also finalizing a Terms of Reference, which is equivalent to an agreement that seeks to establish a standing coordinating group to organize policy development and strategic planning. The group will collaborate on issues of mutual benefit such as non-communications first responder equipment, resolve conflicting activities, and leverage each other's resources. S&T's role will be to adopt standards that ODP can share with first responders through its grant programs. ODP will provide equipment performance information, gleaned from first responders, to S&T for use in adopting equipment standards. However, this agreement has not been signed and the coordinating group is not operational.

In addition to the formal agreements, S&T and SLGCP have implemented coordinative activities on equipment standards. SLGCP has a liaison assigned to S&T who coordinates with the first responder community to determine which standards need to be adopted. The SLGCP coordinator attends weekly S&T standards meetings conducted by the Standards Executive and is tasked with notifying SLGCP when standards are adopted.

S&T managers said that personnel from the National Incident Management System Integration Center and SLGCP attend weekly PPR and SED staff meetings. S&T assigned two employees to the center as full-time coordinators to ensure that the National Incident Management System was compliant with S&T standards. These employees also participate in SSAWGs and interact with SAFECOM through staff meetings, conferences, telephone calls, and other methods to discuss issues to ensure communication interoperability requirements are incorporated into the National Incident Management System.

Inter-Agency Coordination and Support

[54] Memorandum of Understanding between the Department of Homeland Security SAFECOM (Electronic) E-Government Initiative Program Office and the Department of Homeland Security, Office of the Chief Financial Officer, February 2005.

[55] U.S. Government Accountability Office, Electronic Government: Selection and Implementation of the Office of Management and Budget's 24 Initiatives, GAO-03-229, November 22, 2002. One of the five priorities in the President's Management Agenda was the expansion of electronic government - the use of internet applications to enhance access to and delivery of government information and services. Project SAFECOM was one of the 24 initiatives sponsored by OMB to implement this agenda.

S&T implemented agreements with other federal agencies to facilitate the standards adoption process for communication interoperability. Two formal agreements were made with NIST. One agreement establishes coordination between the two agencies and allows for collaboration and cooperation on standards adoption.[56] The second agreement specifies a procedure for collaboration on wireless communication technologies.[57] In FY 2004, S&T awarded NIST $23.6 million to oversee the development of homeland security-related standards for chemical, biological, radiological, nuclear, and explosive countermeasures, personal protective equipment, and communications. In FY 2005, S&T awarded NIST $26.9 million for similar purposes.[58]

Significant personnel were detailed to S&T from key federal agencies to facilitate the standards adoption process. Specifically, S&T has personnel detailed from NIST in important decision making positions within PPR and SED. NIST is an important partner with S&T in the adoption process because it provides scientific resources and experience in facilitating the development of standards for equipment, protective clothing, and communications for the first responder community. S&T more effectively employs the scientific and research assets of NIST through its standards officials.

Between February and June 2005, DHS also signed agreements with the Departments of Agriculture, Defense, Energy, Health and Human Services, and Justice regarding the SAFECOM E-Government Initiative.[59] These agreements have the same purpose and contain similar language as the agreement between SAFECOM and DHS' Office of the Chief Financial Officer.

External Organization Coordination and Support

S&T's standards adoption process is dependent upon SDOs and other external entities, most notably ANSI, IAB, IEEE, and NFPA. Each organization is aware that a centralized standards adoption process exists within S&T, which involves coordination among federal, state, and local governments, as well as the private sector. For example, the IAB identifies standards that are needed for chemical, biological, radiological, nuclear, and explosive equipment and

[56] Memorandum of Understanding, Science & Technology Directorate and National Institute of Standards and Technology, May 22, 2003.
[57] Interagency Agreement, Number HSHQPA-04-X-00378, with the National Institute of Standards and Technology's Office of Law Enforcement Standards, July 27, 2005.
[58] These amounts do not incorporate agreements between NIST and SAFECOM.
[59] Memoranda of Agreement between the Department of Homeland Security and the Department of Justice, February 2005; the Department of Energy, March 2005; the Department of Defense, May 2005; the Department of Agriculture, June 2005; and, the Department of Health and Human Services, February 2005, regarding the SAFECOM E-Government Initiative.

informs S&T, through the formal SSAWG process, that relevant standards need to be adopted.

An IEEE representative said it aligns standards development objectives with S&T by participating on the Homeland Security Standards Panel.[60] NFPA maintains regular dialogues with S&T officials to apprise them of its activities related to developing equipment standards. In addition, representatives from the SDOs and other standards organizations said they interact extensively with S&T through regular conferences, telephone calls, and other means.

SAFECOM officials attend national meetings of standards-related organizations, such as ANSI, IAB, NFPA, and the Association of Public Safety Communications Officials, to review communications equipment standards for potential updates as technology evolves. During these meetings, the ongoing and future development of relevant standards by SDOs is shared. However, decisions reached at these meetings, which can involve actual standards development and approval, are not binding on S&T.

From FY 2003 to FY 2005, S&T provided $60.2 million to SDOs and other external organizations to further its adoption of equipment standards. For example, S&T provided $1.4 million for ANSI to develop and maintain the HSSD in order to centralize national and international homeland security standards, and in FYs 2004 and 2005, for activities relating to equipment standards development. In conjunction with S&T, ANSI has taken the lead in coordinating all homeland security standards development through the Homeland Security Standards Panel. Panel participants include SDOs, first responders, and government agencies.

The IAB provides a forum for first responders to articulate their views on equipment standards. In both FY 2004 and FY 2005, S&T provided the IAB with $250,000 for technical and program support of its equipment standards activities.

The following table summarizes the funding given by S&T to various SDOs and private organizations to support standards development activities.

[60] The Homeland Security Standards Panel coordinates SDOs, private sector organizations, first responder groups, and other government agencies involved with homeland security. The panel assesses specific technical areas to determine whether standards already exist. It also reviews areas where more standards are needed and makes recommendations for SDOs to develop relevant standards.

Table 2: S&T Funds Provided to External Organizations, FY 2003 – FY 2005[61]

	National Institute of Standards and Technology	American National Standards Institute	Institute of Electrical & Electronics Engineers	Association of Analytical Chemists International	InterAgency Board for Equipment Standardization and Inter Operability	Total
FY 2003	N/A	$153,623	N/A	$3,223,286	N/A	$3,376,909
FY 2004	$23,562,000	$931,977	$81,000	$2,944,757	$250,000	$27,769,734
FY 2005	$26,854,000	$510,300	$79,500	$1,336,691	$250,000	$29,030,491
Total	**$ 50,416,000**	**$1,595,900**	**$160,500**	**$7,504,734**	**$500,000**	**$60,177,134**

For FY 2005, the S&T Standards Portfolio budgeted $39.7 million to support the activities of external organizations in developing and coordinating the adoption of DHS standards.[62] According to an S&T official, it evaluates which SDOs receive funds on a case-by-case basis. Currently, S&T provides funds to SDOs for three primary reasons: (1) to access the standards of a particular SDO (equivalent to a membership benefit); (2) to gain membership on an SDO executive committee that considers long-term strategies for standards development; and, (3) to coordinate with SDO subject matter experts on new standards projects. However, we could not identify any systematic criteria that S&T uses when determining the most suitable SDOs for standards-related funding.

Management Comments and OIG Analysis

In their responses, S&T and Preparedness Directorate provided specific comments on each recommendation for which they were responsible, as well as technical comments on specific statements and facts contained within the report. S&T concurred with the four recommendations directed at it, and noted that our recommendations were sound and represented better operational ways to address its adoption of equipment standards for first responders. Preparedness did not concur with one of the two recommendations in its purview. We regard four recommendations resolved and two recommendations unresolved. All recommendations remain open.

[61] The amounts provided to ANSI, IEEE, and the Association of Analytical Chemists International were derived from contracts S&T provided on August 31, 2005. No funds were provided to NFPA or NIOSH.
[62] For FY 2006, S&T's Standards Portfolio has a budget of $35 million to support similar activities of external organizations.

Concerning their technical comments on specific statements and facts in the report, we evaluated each comment on its merit and modified our report where appropriate.

Below are management's comments on each recommendation and our analysis of their comments. A copy of S&T's and Preparedness' responses, in their entirety, is recorded in Appendix B.

Recommendation 1: Ensure that S&T's internal standards database accurately captures data necessary to track the status of standards being considered for adoption.

S&T Response: While S&T concurred with the recommendation, it emphasized that the internal S&T database needs to accurately capture the proposed standard's progression through the SDO development process. S&T stated that the Standards Portfolio is not adequately staffed to track the status of standards being developed by SDOs, which represent complex, internal operations of non-governmental organizations.

S&T proposed amending the three binding directives to assign the tracking of a standard's development to the Standards Coordinator. S&T also noted that the Standards Portfolio has begun to identify single points of contact for first responder equipment standards in other DHS agencies. These personnel, embedded within other DHS components, will monitor the needs and status of standards that particularly affect DHS organizations. S&T again proposed amending the three binding directives to mandate that the relevant Standards Subject Area Expert would perform this liaison function, while also having an appropriate standards expert lead each relevant SSAWG.

OIG Evaluation: We consider the recommendation resolved because S&T's suggested amendments to the directives will help ensure that its internal database will accurately capture data to track the status of standards being considered for adoption. However, S&T needs to clearly define the standards process data that its internal database will capture.

Specifically, we approve of centralizing the tracking of proposed standards to the Standards Coordinator. We also agree that the relevant Standards Subject Area Expert should perform a liaison function with other DHS components, for the SSAWGs. However, we underscore that the spirit of this recommendation involves equipment standards proposed and being considered for adoption in the internal S&T process. This recommendation does not entail tracking standards undergoing the SDOs' more complex and technical development process.

The recommendation remains open until we receive updated directives that contain the appropriate policy changes that assign the tracking of proposed standards to the Standards Coordinator and have the Standards Subject Area Experts perform liaison functions with other DHS components.

Recommendation 1 – Resolved - Open

Recommendation 2: Establish specific, quantifiable performance measures for the S&T standards adoption process that will ensure more timely adoption of standards for use by the first responder community.

S&T Response: According to S&T, timelines can be established as performance measures for those actions within the control of S&T and other DHS components. S&T suggested a multi-phased approach for standards adoption performance measures:

1. Establish performance measures for determining the validity and usefulness for adopting the standards listed in the HSSD and in S&T's internal database.
2. For standards to be adopted, develop a different set of performance measures to measure their rates of adoption.
3. For standards that require further tailoring or development, performance measures do not apply since the activities of independent SDOs are outside of S&T's control.

OIG Evaluation: We consider the recommendation resolved. We concur with S&T's plan to implement two types of performance measures for its standards adoption processes that will assess the efficiency of specific, incremental milestones. The timeliness measures for standards already in the two databases, as opposed to standards newly proposed to S&T, should be parallel when they coincide.

We emphasize that S&T is not accountable for the timeliness of standards being developed by external SDOs, which are beyond S&T's control. These performance measures are only applicable to standards already developed by SDOs and available for adoption by S&T.

The recommendation remains open until we receive a copy of the applicable, quantifiable performance measures for those standards adoption actions within S&T's purview.

Recommendation 2 – Resolved - Open

Recommendation 3: Determine appropriate methods for amending the relevant Management Directives in order to identify specific timeframes for process objectives, monitor the progress of equipment standards adoption, and adjust the process, as needed, to effectively adopt equipment standards.

S&T Response: S&T emphasized that since proposed standards must be vetted through other affected DHS agencies, it controls only certain steps of the adoption process. S&T elaborated that the SSAWGs are the vehicle for monitoring and recommending the adoption of standards. SSAWGs are staffed with employees of the affected DHS agencies in order to obtain consensus from DHS agencies most directly affected by a standard. However, delays are inevitable because the SSAWGs are constituted using a team structure. This delays the process because every affected organization must approve each standard. These delays could be mitigated by decreasing the size of the SSAWGs' membership, from covering every affected organization to only those that are most heavily affected. S&T even suggested a "radical change" of discarding the SSAWG structure in favor of assigning single experts for each type of equipment.

OIG Evaluation: We consider the recommendation unresolved and open because S&T's comments are not directly responsive to this recommendation. We agree that the SSAWGs are the most appropriate entities for monitoring the progress of equipment standards adoption and proposing adjustments to the process when necessary. However, S&T's response did not specify the methods and frequency for monitoring the progress of equipment standards adoption, or how the SSAWGs should propose changes to the adoption process as enumerated in the directives.

Recommendation 3 – Unresolved - Open

Recommendation 4: Ensure that the AEL is explicitly designated as the source of first responder equipment in all ODP grant guidance disseminated to first responder recipients.

Preparedness Response: Preparedness did not concur with this recommendation. It stated that the AEL was developed to focus on equipment for chemical, biological, radiological, nuclear, and explosive incidents, and was never intended to guide equipment purchases in all Preparedness grant programs. Specifically, the Assistance to Firefighters Grant Program has a broad statutory mandate that allows recipients to purchase equipment and training, such as for wellness, fitness, and emergency medical services, which may not be listed on the AEL. Preparedness stated that restricting Assistance to Firefighters Grant recipients to the AEL would be inconsistent with the

program's statutory authority and would hinder the recipient's ability to purchase essential equipment.

Preparedness emphasized that it continues to coordinate with S&T on its standards adoption program to support the application of standards by first responders. Preparedness concluded that it would consider the appropriateness of incorporating S&T-adopted standards into its grant programs.

S&T Response: S&T stated that the Assistance to Firefighters Grant Program predates DHS and funds other types of homeland security-related equipment. Therefore, resistance from state and local first responders should be anticipated in identifying the AEL as the primary source of information on first responder equipment.

OIG Evaluation: We consider the recommendation resolved and open. We agree with both Preparedness and S&T's responses that the AEL is limited in both identifying all available equipment for first responders and in ascribing equipment standards to every item. However, as we noted in our report, Preparedness grants are the primary means for DHS to achieve compatibility and interoperability among first responder equipment. In addition, the requirement that first responders purchase equipment listed on the AEL is affirmed in the HSGP grant guidance, which is Preparedness' largest grant program that distributes funds to first responders.

We recognize that the Assistance to Firefighters Grant Program gives first responders sensible latitude with their equipment purchases. Current grant guidance for this program offers several general options for standards, but it does not specify the standards to which first responders should conform their equipment purchases (whether mandatory or not). All Preparedness' grant guidance should, at a minimum, reference the AEL as a resource to assist first responders in determining which equipment is allowable and compliant.

In light of the comments on this recommendation, we amend the recommendation as follows: "Ensure that the AEL is designated as a source of allowable first responder equipment in all ODP grant guidance disseminated to first responder recipients."

Recommendation 4 – Resolved - Open

Recommendation 5: Mandate, through grant guidance and enforcement monitoring, that all equipment purchased by first responders using funds from ODP grant programs complies with corresponding standards adopted by S&T.

Preparedness Response: Preparedness concurred with this recommendation, emphasizing that all S&T-adopted standards were incorporated into the HSGP. Preparedness stated that buying equipment that complies with the standards is mandatory where at least one commercial product exists that conforms to the standard. Compliance with S&T standards is recommended where no products have yet passed the test requirements.

Preparedness also explained that while some SDO standards were incorporated as mandatory standards in grant guidance, further S&T-adopted standards will be integrated into all grant guidance.

S&T Response: According to S&T, equipment currently on the AEL should still be eligible for purchase, until S&T adopts a corresponding standard for that equipment. Once a standard is adopted by S&T, the AEL has to be screened to ensure that the equipment on the list, which is linked to that standard, also meets that standard. If it is determined that existing equipment on the AEL does not meet newly adopted standards, then an equitable process needs to be implemented to resolve this problem. New equipment should only be added to the AEL if it conforms to adopted standards or receives a waiver, on a case-by-case basis, to fulfill a pressing need.

OIG Evaluation: We consider the recommendation unresolved and open. The spirit of this recommendation is for Preparedness to ensure that first responders buy equipment, using its grant funds, which complies with corresponding S&T standards. This should be done by incorporating appropriate provisions in the grant guidance. While applicable provisions were contained in the HSGP guidance, the Assistance to Firefighters Grant Program guidance does not explicitly mandate that grantees purchase equipment that complies with S&T-adopted equipment standards. Instead, this guidance requires recipients to comply with standards, such as those developed by NFPA, which have not necessarily been adopted by S&T.

In its response, Preparedness also did not address any methodology for how its enforcement monitoring process would ensure that all equipment, purchased by first responders using ODP funds, complies with corresponding S&T standards.

DHS needs to take advantage of these incremental opportunities to enhance equipment compatibility and interoperability for first responders. If S&T standards exist for first responder equipment, then first responders should have to buy equipment that complies with those standards when using Preparedness grant funds.

Recommendation 5 – Unresolved - Open

Recommendation 6: Mandate, through program guidance and standard operating procedures, that S&T systematically monitor and review the AEL to ensure that all listed equipment conforms to currently applicable DHS standards.

S&T Response: S&T countered that no directive specifically delegates the responsibility for monitoring and reviewing the AEL to any particular entity in the standards adoption process. However, S&T stipulated that this function is most proper for the Standards Subject Area Expert, within the appropriate SSAWG. S&T stated it would add suitable statements to the directives to assign this duty. Additionally, the SSAWG members should be given the responsibility for advising the Standards Subject Area Expert if they become aware of an event that alters the AEL, such as the adoption of new standards. S&T proposed to review the AEL on a regular basis, such as quarterly.

Since Preparedness has primary control over the AEL, S&T proposed that the standards point of contact at Preparedness (Office of Grants and Training) be given the responsibility for alerting the S&T Standards Portfolio of any standards-related activities that impact information on the AEL.

OIG Evaluation: We agree that the pertinent directives do not assign responsibility for monitoring and reviewing the AEL to any S&T entity. However, the directives should be amended to satisfy this recommendation.

We consider the recommendation resolved because the proposed changes to the directives are sufficient. However, the relevant provisions in the directives should clearly designate the specific level of Standards Subject Area Expert who is responsible for monitoring the AEL. S&T should also review the AEL at least on a semi-annual basis.

The recommendation remains open until we receive revised copies of the directives that explicitly assign S&T responsibilities for monitoring and reviewing the AEL.

Recommendation 6 – Resolved - Open

Purpose, Scope, and Methodology

The purpose of our review was to assess the Science and Technology (S&T) directorate's progress in establishing equipment and communication interoperability standards for the first responder community. We examined S&T's operations and performance in fulfilling these efforts and its coordination with other DHS components to ensure dissemination and awareness of equipment standards adopted by S&T; the number and types of adopted standards related to first responder equipment and communication interoperability; and, the extent to which S&T has the authority to ensure that first responders comply with DHS equipment standards

We reviewed S&T's organizational structure and objectives for adopting equipment standards and the roles and responsibilities of the Programs, Plans, and Requirements (PPR) and Systems Engineering and Development (SED) offices as they have primary responsibility for researching and adopting relevant standards for first responders. Our review included an analysis of the process by which PPR and SED receive proposed equipment standards from Standards Development Organizations (SDOs).

We did not evaluate the effectiveness of the S&T technical process for determining which equipment and communication interoperability standards to adopt. We also did not assess compliance by first responders in purchasing equipment that complies with DHS equipment standards.

Our fieldwork included interviewing, analyzing data, and reviewing documents and information. We interviewed S&T management and program officials at headquarters and interviewed officials of the Office of State and Local Government Coordination and Preparedness who are knowledgeable about equipment standards and DHS grant programs. We also interviewed officials within DHS' Emergency Preparedness & Response directorate and the Domestic Nuclear Detection Office, and officials from organizations with expertise in first responder equipment standards, including the National Fire Protection Association, the Institute of Electrical & Electronics Engineers, the National Institute of Standards and Technology, the American National Standards Institute, and the InterAgency Board for Equipment Standardization and Inter Operability.

We analyzed S&T's national standards tracking database that maintains data on DHS standards and standards submitted by SDOs. We also examined the time S&T requires to complete the standards adoption process.

We reviewed statutes, such as the HSA, and regulations and we examined data related to contracts between S&T and SDOs and other external organizations. We analyzed data in the Authorized Equipment List, the Responder Knowledge Base, the Standardized Equipment List, and the Homeland Security Standards Database, and grants and funding data related to the Homeland Security Grant Program and the Assistance to Firefighters Grant program.

We conducted our review between June and October 2005. Our review was conducted under the authority of the *Inspector General Act of 1978*, as amended, and according to the *Quality Standards for Inspections* issued by the President's Council on Integrity and Efficiency.

[Science & Technology Directorate's Response to Recommendations]

Draft Report: *A Review of DHS' Progress in Adopting and Enforcing Equipment Standards for First Responders*

Opening Comment:

In Recommendation #3, the OIG Report notes that the management directives for standards adoption should be amended for the specific purpose of adding timelines. The discussion below references several other changes in the management directives, particularly Management Directive (MD) 10601.1.

Standards Data is Not Consistently Captured

Recommendation (pg 14 of draft report)

We recommend that the Under Secretary for Science and Technology:

1. Ensure that S&T's internal standards database accurately captures data necessary to track the status of standards being considered for adoption.

While this recommendation is valid, its emphasis misses the point. The database needs to accurately capture data as a standard progresses through development. However, the Standards Portfolio is not adequately staffed to track the status that would be input into the database. The technology areas involved with personal protection, detection, decontamination, and communications is varied and complex. Several SDOs are in fact required to address all of the detailed issues involved in creating standards for the whole of these technology areas. Several committees or working groups within an SDO can often be engaged in the creation of a single standard. The issues within a single standard can often be so involved that periodic meetings last for a week. Therefore, the work required to be able to accurately track a standard's status can be quite intensive. If S&T's internal standards database is to have value, it is necessary to meaningfully engage the activities of the SDOs in order to populate the database with impartial and accurate data. It is this engagement of the SDOs which requires adequate staffing.

In MD 10600.1 tracking the status of standard development is a function appropriate for the Standards Coordinator, Section 4.L. A statement capturing this recommendation should be added to

- MD 10600.1 in Sections 4.E.,
- MD 10601 in Sections 4.E, and possibly in 5.B., 6.B.4., 6.C.4, 6.D.1, and/or 6.F.3.,
- MD 10602 in Section V.B.

The Standards Portfolio has begun to identify a single point of contact (POC) for standards in the other DHS Departments and Agencies. These POCs are valuable assets as they are imbedded within

the sister components of DHS and are monitoring the needs and status of standards that particularly affect their organization. Currently the POCs participate in the weekly staff meeting conducted by the Portfolio. It would be beneficial if the Portfolio had sufficient permanent staff to have closer contact with these POCs. Standards Subject Area Expert (SSAE), as defined in Section 4.M. of MD 10600.1, would be candidates to perform this liaison function plus lead the Standards Subject Area Working Groups (SSAWG) described in MD 10600.1, Section 4.N. Statements designating this responsibility to the SSAE could be added to Sections 5 and 6 of MD 10601.1.

Standards Adoption Performance Measures are Needed

Recommendation (page 17 of draft report)

We recommend that the Under Secretary for Science and Technology:

2. Establish specific, quantifiable performance measures for the S&T standards adoption process that will ensure more timely adoption of standards for use by the first responder community.

Timelines can be established as performance measures for those actions within the control of S&T and by extension, DHS (G&T). If candidate standards under consideration require tailoring or even new development by SDOs, then S&T can monitor progress but can not be held accountable for timelines that are beyond its control. A multi-phased approach for establishing performance measures and timelines may therefore make sense. Consider the following:

- Develop performance measures for determining the validity and usefulness for adopting the standards listed among the 81 standards in the HSSD and the 65 in S&T's internal database.
- For standards to be adopted, develop another set of performance measures to measure their rate of adoption.
- For standards of interest that require further tailoring or development, performance measures would not apply since the activities of independent SDOs are outside the control of S&T and therefore, timelines tied to performance measures are unenforceable by the Portfolio. Establishing a tracking process that records events in the lifecycle of standards development, such as, issuance of first draft, sending out for comments, resolution of comments, and final passage is appropriate, but S&T should not be held accountable for external delays.
- Once new standards are completed and ready for adoption, timelines can be established.

Current Process Is Not Effectively Addressing First Responder Needs

Recommendation (page 20 of draft report)

We recommend that the Under Secretary for Science and Technology:

3. Determine appropriate methods for amending the relevant Management Directives in order to identify specific timeframes for process objectives, monitor the progress of equipment standards adoption, and adjust the process, as needed, to effectively adopt equipment standards.

To "effectively adopt equipment standards" a standard must be completed then vetted through the DHS Directorates/Agencies that are affected by it. As noted above, DHS does not control the development of standards to the extent that it is possible to set timeframes for their development by independent SDOs. Once completed S&T has the obligation to vet standards through the other Directorates in DHS, in particular those that will have their responsibilities affected on a daily basis by the standard, e.g., those using WMD detection devices at the borders. While S&T can shepherd the documents through the process, it would be difficult to control. This being said, it is possible to monitor this process for certain other parts of the adoption process.

The Management Directives have set up the SSAWGs as the vehicle to perform the tasks of monitoring and recommending the adoption of standards. As the name implies a SSAWG is a team of experts. Both the letter and spirit of the process is to have this team be populated with employees of the affected Directorates and Agencies. In addition to benefiting from the expert's talents, a major objective is to garner buy-in by having those most directly affected by a standard be the same people who recommend the adoption of that standard. The negative effect of having a group structure is that delays are inevitable. These delays could be mitigated by decreasing the size of the group from covering every affected organization to those most highly affected. A radical change would be to discard the group structure in favor of a single expert model. In this latter case the incumbent expert would likely have to have standards identification, review and adoption as a major task of their position.

If the last recommendation is accepted the Directives need to engage G&T in an appropriate way. Additionally the Directives need to bring in the appropriate level of support from other components of DHS and should include some participation of state and local bodies through G&T.

Specific Grant Guidance is Essential

Recommendation (Page 23 of draft report)

We recommend that the Under Secretary for Preparedness:

4. Ensure that the AEL is explicitly designated as the source of first responder equipment in all ODP grant guidance disseminated to first responder recipients.

The Office of Grants and Training's fire and law enforcement grant program predates DHS. It is possible that by limiting the procurement of equipment to the AEL may be construed by customers of the AEL as too restrictive for a legacy grant program that was meant to actually do more than fund homeland security related equipment. The Department should anticipate resistance from the

state and local communities and reach out to the fire and law enforcement departments and the Congress to determine what the level of resistance may be and attempt to assuage any problems before they occur.

Regarding SAFECOM the Report contains the following comment concerning Project 25 (P25) on Page 16.

> "While only one of the eight interfaces comprising Project 25 is fully developed and available for adoption, S&T has not adopted it. …. It is imperative that S&T continues its progress towards development and adoption of communication interoperability standards."

The single completed interface for P25 is the Common Air Interface (CAI). The CAI allows portable handheld and mobile digital land mobile radios built by different manufacturers to be able to communicate with one another, assuming they operate within the same band. The reason that S&T has not adopted this standard yet is that it is incomplete. To date, only a single manufacturer builds "P25" radio infrastructure. To adopt this standard before it is complete would in effect mandate a sole source.

Three additional P25 interfaces are required before multiple manufacturers will have an ability to actually build compliant P25 infrastructure. These interfaces are the Inter-RF Subsystem Interface (ISSI), the Console-to-Console Interface, and the Fixed Station Interface. Significant progress has been made in the past year to greatly accelerate these three interfaces.

Once the interface issue is solved sufficient portions of the P25 standard will be complete. At that time it would be appropriate for S&T to adopt P25. It is anticipated that this may occur as soon as the end of this calendar year or early next.

5. Mandate, through grant guidance and enforcement monitoring, that all equipment purchased by first responders using funds from ODP grant programs complies with corresponding standards adopted by S&T.

Equipment currently on the AEL should continue to be allowed for purchase, i.e. "grandfathered", until S&T adopts a corresponding standard for that piece of equipment. Once a standard is adopted by S&T, the AEL would need to be screened to identify that the equipment on the list "serviced" by that standard meets that standard. If it is determined that existing equipment on the AEL will not meet newly adopted standards, then an equitable process/timeline would need to be determined to resolve this problem. New equipment should only be added to the AEL if it meets adopted standards or receives a waiver on a case-by-case basis to fill a pressing need.

S&T is not adequately monitoring the Authorized Equipment List

Recommendation (Page 25 of draft report)

We recommend that the Under Secretary for Science and Technology:

6. Mandate, through program guidance and standard operating procedures, that S&T systematically monitor and review the AEL to ensure that all listed equipment conforms to currently applicable DHS standards.

Management Directive 10600.1 does not specifically delegate the responsibility of monitoring and reviewing the AEL to any particular team or individual in the standards adoption process. This function is most appropriate for either or both the SSAE or the SSAWG. It is recommended that primary responsibility for this be given to the SSAE by adding suitable statements to Section 5 and 6 of MD 10600.1. Additionally the SSAWG members should also be given responsibility for advising the SSAE if they become aware of an event that alters the AEL, e.g., addition of new equipment or standards activities. The AEL should be reviewed on a regular basis, e.g., quarterly. It is recommended that appropriate language be added to Management Directive 10600.1 at Section 5.C. and to Management Directive 10602 at Section V.B.

Since primary control over the AEL rests in the domain of OGT, it is recommended that the standards point of contact at OGT, whether informally or formally , e.g., MOU, be given the responsibility of alerting the S&T Standards Portfolio of any activities that alter the AEL in a manner that affects standards requirements.

Preparedness Directorate
U.S. Department of Homeland Security
Washington, DC 20528

Homeland Security

March 7, 2006

MEMORANDUM TO: Robert L. Ashbaugh
Assistant Inspector General for Inspections and Special Reviews

FROM: George W. Foresman
Under Secretary

SUBJECT: Response to Draft Inspector General Report, "A Review of DHS' Adopting and Enforcing Equipment Standards for First Responders"

This responds to your January 27, 2006, memorandum requesting the Preparedness Directorate's comments on the draft Office of the Inspector General report, *A Review of DHS' Adopting and Enforcing Equipment Standards for First Responders.* The attached document provides specific comments on the two recommendations directed to the Preparedness Directorate. In addition, we have provided some proposed language changes to clarify G&T activities described in the draft report. Questions concerning specific comments should be addressed to Brad Shefka at 202-282-8532.

Please accept our thanks for the opportunity to respond to the draft report and to work with the Office of the Inspector General during this engagement. The Office of the Inspector General's independent analysis of the Preparedness Directorate's efforts greatly benefits our ability to continuously improve our programs and activities. We look forward to continuing this partnership in the future.

Attachment

cc: Tracy Henke
Steven Pecinovsky

Response to the Draft IG Report
A Review of DHS' Adopting and Enforcing
Equipment Standards for First Responders

The draft report provides two specific recommendations for consideration in the implementation of the Office of Domestic Preparedness (ODP), currently known as the Office of Grants and Training (G&T), grant programs. The Preparedness Directorate's response to each specific recommendation follows:

Recommendation #4: "Ensure that the Authorized Equipment List (AEL) is explicitly designated as the source of first responder equipment in all ODP grant guidance disseminated to first responder recipients."

Response: The Preparedness Directorate does not concur with this recommendation. This is based primarily on the fact that the Authorized Equipment List was developed as part of the State Homeland Security Grant Program, and, although dual use/all hazards preparedness is encouraged, as authorized, this program focuses on equipment to be used for chemical, biological, radiological, nuclear, and explosive incidents such as detection and decontamination equipment. It was never intended for use with all of G&T's grant programs.

To be specific, G&T's Assistance to Firefighter's Grant Program has a much broader mandate as it allows for the purchase of firefighting equipment, training, personal protective equipment, wellness and fitness equipment, emergency medical services (EMS) equipment. Additionally, vehicle funding includes grants for new firefighting vehicles, used fire apparatus, or refurbished apparatus, and to refurbish a currently owned department vehicle. Restricting AFG recipients to the AEL would be inconsistent with the program's statutory authority and hinder the recipients' ability to purchase needed equipment.

Further, G&T continues to work closely with the Office of Science and Technology (S&T) Directorate in its standards adoption efforts, through the Standards Coordination Program. The purpose of this program is to work within DHS, as well as with other external agencies and organizations, to support the development and use of effective and consistent standards and conformity assessment policies for the first responder community. As more standards are developed and adopted, G&T will continue to consider the appropriateness of incorporating these standards into its grant programs.

Recommendation #5: "Mandate, through grant guidance and enforcement monitoring, that all equipment purchased by first responders using funds from ODP grant programs complies with corresponding standards adopted by S&T."

Response: As recommended, in FY 2006, all standards adopted by the Department of Homeland Security have been incorporated into the Homeland Security Grant Program Guidance. Wherever at least one commercial product is available that meets the adopted standards, the standards are cited as mandatory and only compliant products are allowable.

For the four newly-created ANSI N42 radiation detection standards, since no products have passed all the test requirements to date, the standards are cited as recommended. As products meeting these standards become available in the marketplace, the standards will become mandatory. In addition, some established third party standards from organizations such as the National Fire Protection Association (NFPA) have been incorporated as mandatory standards in the grant guidance in response to recommendations from subject matter experts. As applicable standards are adopted by DHS S&T, they will be incorporated into the grant guidance.

Marcia M. Hodges, Chief Inspector, Department of Homeland Security, Office of Inspections and Special Reviews

Carlton Mann, Chief Inspector, Department of Homeland Security, Office of Inspections and Special Reviews

Andrew B. Hoffman, Inspector, Department of Homeland Security, Office of Inspections and Special Reviews

Jacqueline D. Simms, Senior Inspector, Department of Homeland Security, Office of Inspections and Special Reviews

Kristine Odiña, Inspector, Department of Homeland Security, Office of Inspections and Special Reviews

Listed below are the 12 standards for personal protective and detection equipment that were adopted by S&T in February 2004:[63]

Standards for Personal Protective Equipment

1. NIOSH: Chemical, Biological, Radiological and Nuclear Standard for Open-Circuit Self-Contained Breathing Apparatus (December 2001)
   This standard establishes performance and design requirements to certify Self-Contained Breathing Apparatus for use in chemical, biological, radiological, and nuclear exposures for use by emergency responders.

2. NIOSH: Standard for Chemical, Biological, Radiological, and Nuclear Full Facepiece Air Purifying Respirator
   The purpose of this standard is to specify minimum requirements to determine the effectiveness of full facepiece air purifying respirators, commonly referred to as gas masks, used during entry into chemical, biological, radiological, and nuclear atmospheres not immediately dangerous to life or health.

3. NIOSH: Standard for Chemical, Biological, Radiological, and Nuclear Air-Purifying Escape Respirator and Chemical, Biological, Radiological, and Nuclear Self-Contained Escape Respirator
   The purpose of this standard is to specify minimum requirements to determine the effectiveness of escape respirators that address chemical, biological, radiological, and nuclear materials identified as inhalation hazards from possible terrorist events for use by the general working population.

4. NFPA 1951: Standard on Protective Ensemble for Urban Search and Rescue Operations
   Based on work begun in 1997, this standard answers the need for personal protective equipment for fire and emergency services personnel operating at technical rescue incidents involving building or structural collapse, vehicle accidents, confined spaces, trench cave-ins, scaffolding collapses, high angle climbing accidents, and similar incidents. The first edition of this standard was issued in July 2001.

5. NFPA 1981: Standard on Open-Circuit Self-Contained Breathing Apparatus for Fire and Emergency Services
   Based on work begun in 1975, this standard specifies the minimum requirements for the design, performance, testing, and certification of open-circuit Self-Contained Breathing Apparatus and combination open-circuit self-contained breathing apparatus and supplied air respirators for the respiratory protection of fire and emergency responders where unknown, immediately dangerous to life and health, or potentially immediately dangerous to life and health atmospheres exist. The first edition was issued in July 1981 and the current edition, issued in July 2002, is the fifth edition.

[63] "First Responders: Science & Technology Standards," Science & Technology directorate, Department of Homeland Security.

6. NFPA 1991: Standard on Vapor-Protective Ensembles for Hazardous Materials Emergencies
   Based on work begun in 1986, this standard specifies the minimum requirements for the design, performance, testing, and certification of vapor-protective ensembles and individual protective elements for chemical vapor protection for fire and emergency service personnel. Additional optional criteria are provided for ensembles and individual protective elements that provide protection for chemical flash fire escape, liquefied gas, chemical and biological warfare agents, and chemical and biological terrorism incidents. The first edition was issued in January 1990 and the current edition, issued in January 2000, is the third edition.

7. NFPA 1994: Standard on Protective Ensembles for Chemical/Biological Terrorism Incidents
   Based on work begun in 1998, this standard specifies the minimum requirements for the design, performance, testing, and certification of protective ensembles for fire and emergency services personnel operating at domestic terrorism incidents involving dual-use industrial chemicals, chemical terrorism agents, or biological terrorism agents. The intent is that the ensembles would be available in quantity, easily donned and used, and designed for single exposure use. The first edition of this standard was issued in July 2001.

8. NFPA 1999: Standard on Protective Clothing for Emergency Medical Operations
   Based on work begun in 1990, this standard specifies the minimum requirements for the design, performance, testing, and certification of new single-use and multiple-use emergency medical protective clothing, including garments, gloves, footwear, and face protection devices, used by fire and emergency services personnel performing patient care during emergency medical operations for protection against exposure to blood and body fluid-borne pathogens. The first edition was issued in July 1992 and the current edition, issued in January 2003, is the third edition.

Standards for Radiation and Nuclear Detection Equipment

1. 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.

2. 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.

3. 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.

4. 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.

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