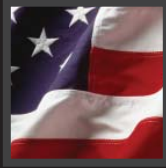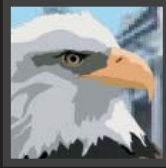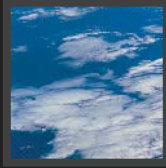# The InterAgency Board

2005 Annual Report
2006 Standardized Equipment List

Dedication

Dedicated to those brave Americans who stand forever vigilant to protect this country from those who would attempt to deny us our freedom. May their strength give us strength.

IAB Champions

Arlington County (VA) Fire Department
Austin - Travis County (TX) Emergency Medical Services
Boise (ID) Fire Department
Boston (MA) Fire Department
Centers for Disease Control and Prevention
Chicago (IL) Fire Department
City of Chicago (IL), Office of Emergency Management and Communications
City of Las Vegas (NV), Office of Emergency Management
City of Seattle (WA) Fire Department
Contra Costa County (CA) Office of the Sheriff
Dartmouth College
Delaware Emergency Management Agency
Department of Defense, Office of the Deputy Assistant to the Secretary of Defense for Chemical/Biological Defense
Department of Defense, Program Executive Office for Chemical and Biological Defense
Department of Defense, Research, Development and Engineering Command, Edgewood Chemical Biological Center
Department of Homeland Security, Federal Emergency Management Agency
Department of Homeland Security, National Incident Management System Integration Center
Department of Homeland Security, Preparedness Directorate's Office of Grants and Training
Department of Homeland Security, Science and Technology Directorate

Disaster Management Interoperability Services
Douglas County (GA) Fire Department
Downers Grove (IL) Fire Department
Fire Department, City of New York (NY)
Forsyth County (NC), Emergency Medical Services
George Washington University
Georgetown University Walsh School of Foreign Service
Hennepin County (MN) Sheriff's Office
International Association of Chiefs of Police
International Association of Fire Chiefs
International Association of Fire Fighters
International Personnel Protection
Jefferson County (CO) Sheriff's Office Bomb Squad
Lawrence (KS) Police Department
Los Angeles (CA) Fire Department
Los Angeles City (CA) Fire Department
Los Angeles County (CA) Sheriff's Department
Louisiana State Police
Massachusetts Department of Fire Services
Medical University of Ohio
Miami Township (OH) Fire Protection Division
Missouri State Highway Patrol
Montgomery County (MD) Communications Center
Nashua (NH) Fire Department
National Association of Emergency Medical Technicians

National Bomb Squad Commanders Advisory Board

National Emergency Management Association

National Fire Protection Association

National Institute for Occupational Safety and Health, National Personal Protective Technology Laboratory

National Institute of Justice

National Institute of Standards and Technology, Office of Law Enforcement Standards

National Memorial Institute for the Prevention of Terrorism

New Castle County (DE) Police Department, Emergency Medical Services

New York State Police

Office of Emergency Management and Communication, City of Chicago

Oklahoma, Region 7, Terrorism Early Warning Group

Orange County (CA) Fire Authority

Orlando (FL) Fire Department

Phoenix (AZ) Fire Department

Placer County (CA) Health and Human Services

Port Authority of New York/New Jersey

Responder Knowledge Base

Sacramento (CA) Sheriff's Office

Sacramento County (CA) Sheriff

Sarasota County (FL) Fire Department

Seattle (WA) Fire Department

Seattle (WA) Public Utilities

South Central Pennsylvania Counter-Terrorism Task Force

Suffolk County (NY) Police Department

Technical Support Working Group

Terrorism Research Center

Texas Engineering Extension Service

United States Army Center for Health Promotion and Preventive Medicine

United States Capitol Police

United States Coast Guard, National Strike Force

United States Department of Health and Human Services

United States Department of Occupational Safety and Health Administration

United States Department of Veterans Affairs

United States Environmental Protection Agency

United States Fire Administration

United States Marine Corps, Chemical Biological Incident Response Force

United States Marshals Service

United States Naval Research Laboratory

United States Secret Service

University of Connecticut

University of Missouri Fire and Rescue Training Institute

University of Washington

Virginia Department of Emergency Management

Yale University Emergency Medicine

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The InterAgency Board (IAB) 2005 Annual Report and the 2006 Standardized Equipment List (SEL)

Robert J. Ingram
Chief in Charge, HazMat Operations
Fire Department, City of New York

Robert Ingram is a 31-year veteran of the Fire Service, the last 24 years for the Fire Department, City of New York. As Chief in Charge of HazMat Operations, a response group of over 2500 trained above the Operations level, he is responsible for the training, equipping, and response protocols for FDNY in the area of hazardous materials response. Chief Ingram has served as a specialist, lieutenant, and captain in the hazardous materials response group, as well as fire suppression and administrative assignments. Prior to and during the September 11 attack on the World Trade Center, he was logistics officer for the NYTF-1 Urban Search and Rescue Team and Hazardous Materials Branch Chief. Chief Ingram represents FDNY on the NFPA 472 Standard Committee for Hazardous Materials Response and has represented FDNY in hazardous materials/weapons of mass destruction issues for numerous New York City interagency responses and exercises. He is a master instructor in hazardous materials, incident command, and weapons of mass destruction for the International Association of Fire Fighters and instructs for both public agencies and the private sector. Chief Ingram has been a member of the IAB since 1999 in the Detection and Decontamination SubGroup.

Letter from the Chair, *Robert Ingram*

As 2005 nears an end, the IAB marks seven years of multidisciplinary advocacy for standardization and interoperability in equipment, training, and response protocols for CBRNE incidents.

In this past year the IAB has organized a new Training SubGroup, which is co-chaired by A. D. Vickery, Chief of Operations for Seattle Fire Department, former Chair of the IAB, and Barbara Biehn, Deputy Director for Training and Exercises in the DHS Preparedness Directorate's Office of Grants and Training (formerly Office for Domestic Preparedness). Together with the SubGroup members, they have identified objectives and priorities that will focus on the operational application of DHS training doctrine and programs. The SubGroup membership reflects the ten response disciplines identified by DHS as the training audience, with additional representation from the private sector including transportation infrastructure.

The IAB continues to work with all federal agencies and standards development organizations by identifying existing standards that are applicable and any gaps that exist in the suite of CBRNE standards. This effort is necessary to provide practical and achievable guides for equipment used by first responders in all disciplines. This continues to be an important objective, as initial key word searches of the ANSI database of CBRNE standards totaled over 6500 and fewer than two dozen have been recognized by DHS to date.

The IAB and response community continue to look to OSHA for harmonization on PPE terminology regarding chemical protective clothing. With the existing use of Levels A, B, and C versus the new use of "class" and "division" in NFPA's 1991, 1992, and 1994 performance-based standards, there exists much confusion in how these two can be cross-referenced when looking at equipment that can be purchased with DHS grant funds.

Interoperability and standardization of equipment remain hot topics in communications, respiratory protection, agent detection, decontamination solutions, and personnel accountability, to name just a few. With the recent hurricane disasters underlining the need at the federal level to address "all hazards" response preparedness as a goal, coordinating local, tribal, state, and federal resources that are interoperable with standardized equipment becomes more critical.

The community of first responders must stay informed in many areas today when dealing with equipment, particularly regarding the purchase, training, and maintenance of new technology. Funding will become increasingly tight as the federal government is expected to provide more response capabilities domestically than ever before. Web sites like the Responder Knowledge Base (www.rkb.mipt.org) will become more valuable to local response agencies in their preparedness plans, providing information on basic equipment needs with links to products, test results, standards, and user insights. The IAB will continue to support the National Memorial Institute for the Prevention of Terrorism's Responder Knowledge Base (RKB) portal for first responders.

The IAB commitment to the safety and health of the response community through standardization and interoperability of equipment and training remains as strong as ever. We will continue to provide information to the response community and a multidisciplinary voice of responder priorities to the federal partners.

Out of many voices, one set of priorities.

Sincerely,

Robert Ingram, Chair, InterAgency Board

The InterAgency Board Charter

The IAB is a user-working group supported by voluntary participation from various local, state, federal government, and private organizations.

Mission

The InterAgency Board (IAB) for Equipment Standardization and Interoperability is designed to establish and coordinate local, state, and federal standardization, interoperability, and responder safety to prepare and train for, respond to, mitigate, and recover from any incident by identifying requirements for chemical, biological, radiological, nuclear, or explosive (CBRNE) incident response.

Scope

The IAB supports local, state, and federal responders' efforts in homeland security by the following activities:

- Providing an independent operational viewpoint to federal agencies.

- Facilitating integration among local, state, and federal response communities to promote proper selection and use of the best available equipment and procedures to optimize safety, interoperability, and efficiency.

- Developing, maintaining, and updating a Standardized Equipment List (SEL) that provides responders with a reference for the type of equipment required to prepare and train for, respond to, mitigate, and recover from a CBRNE incident.

- Advocating for, assisting in, and promoting the development and implementation of performance criteria, standards, requirements, and test protocols for SEL-listed CBRNE incident response equipment.

- Encouraging the coordination of local and state response communities with established military and federal acquisition programs for procurement of SEL-listed CBRNE incident response equipment.

- Sharing knowledge, expertise, and technology regarding the detection, identification, warning, protection, decontamination, response management, and medical management of CBRNE incidents among local, state, and federal response communities.

- Providing a structured forum for the exchange of ideas among operational, technical, and support agencies for national preparedness to promote interoperability among local, state, and federal response communities.

- Identifying and prioritizing CBRNE incident response equipment requirements.

- Encouraging manufacturers and governmental, military, and private agencies to sponsor priority research and development projects to satisfy local, state, and federal CBRNE incident response equipment requirements.

- Providing assistance and/or guidance to agencies, associations, and manufacturers requiring operational testing of new and emerging equipment and technologies.

- Preparing and publishing an annual report to articulate the activities and accomplishments of the IAB.

Organizational Structure and Responsibilities

IAB Chair—**The IAB Chair is selected from the ranks of the local and state membership. Confirmation occurs by a simple majority vote of the general membership present at the meeting at which the annual report is finalized. The Chair is elected to a two-year term starting the first meeting of odd years.**

- The Chair administers, organizes, and facilitates the actions of the IAB.

- The Chair provides recommendations to the Federal Agency Coordinating Committee (FACC) and direction to the SubGroup chairs.

Federal Agency Coordinating Committee—**The FACC provides the interface between the IAB and sponsoring federal government agencies. The committee consists of the federal officials from contributing agencies and departments and has the following responsibilities:**

- Coordinate and leverage ongoing federal research, development, testing, and evaluation (RDT&E) efforts to meet the responder requirements as identified and prioritized by the IAB.

- Solicit and coordinate mission support for the IAB, which includes activities such as organizational staff support, contributory funding, project sponsors, meetings, technical support, the IAB business cycle, and resulting products.

- Meet with the IAB Chair on a regular basis to review SubGroup recommendations and actions.

- Meet to coordinate federal requirements for action by the IAB.

- Attend general membership meetings.

- Review and approve the annual operating budget for the IAB, and maintain a support staff to facilitate the operation of the IAB.

SubGroups/Committees

- The IAB has five SubGroups:
  - Personal Protective and Operational Equipment
  - Detection and Decontamination
  - Interoperable Communications and Information Systems
  - Medical
  - Training

- The IAB has two additional committees:
  - Standards Coordination Committee (SCC), consisting of SubGroup Co-Chairs and subject matter experts (SMEs)
  - Science and Technology Committee, consisting of SubGroup member representatives and SMEs

- Co-Chairs—Each SubGroup/Committee elects two Co-Chairs, one from the local and state ranks and a second from federal ranks. The Co-Chairs are elected for two-year terms, with the elections for the local/state Co-Chair and the federal Co-Chair conducted on alternating years. The first local and state Co-Chair has a term of one year to achieve this alternating cycle. There are no term limits; Co-Chairs may be reelected when their term has ended. The duties of SubGroup/Committee Co-Chairs are as follows:

  – Direct the efforts to accomplish the scope of IAB activities as identified in this charter.

  – Provide liaison with the IAB Chair.

  – Complete and provide to the IAB Chair, via the support staff, all administrative reports as required by the IAB Chair.

  – Serve as a member on the SCC.

  – Provide membership recommendations. It is the responsibility of the Co-Chairs to review membership participation annually and to ensure SubGroup membership represents the interest across the entire responder community.

  – Assign a SubGroup member representative to liaison with other SubGroups and committees as needed or directed by the IAB Chair.

- Membership

  – Members participate in the SubGroups/Committees and lend expertise and support to the IAB mission.

  – SubGroup/Committee membership is limited to 20 voting members.

  – SubGroup membership may be augmented for specific projects with additional non-voting SMEs or with members of other SubGroups in nonvoting status.

  – Nomination for membership can be made by any IAB member to the SubGroup/Committee Co-Chairs.

  – Members are appointed by a majority vote of the two SubGroup/Committee Co-Chairs and the IAB Chair.

  – Individuals may serve as voting members in only one SubGroup; however, they may participate in other SubGroups in a nonvoting status.

Execution

The IAB shall conduct its mission during three formal board meetings annually and SubGroup/Committee sessions and working groups as needed.

- Meeting agendas will be set by the IAB Chair.

- Agenda work items shall include, but not be limited to, the following:

  – Publishing an annual report of work.

  – Developing data for and publishing the SEL.

  – Prioritizing equipment, standards, and training requirements.

  – Evaluating existing standards that link to SEL items.

  – Establish the priority needs of the responder community regarding equipment, standards and training.

The InterAgency Board Structure

The IAB is organized into Committees and SubGroups that are chaired by a First Responder, supported by a Federal Co-Chair, and staffed with subject matter experts in that Committee's/SubGroup's area of interest. Each Committee/SubGroup is responsible for maintaining its subsection of the Standardized Equipment List (SEL). The Federal Coordinating Committee is the exception as it is chaired by a Federal Chair and composed of supporting federal government representatives.

The InterAgency Board (IAB)

The IAB Chair is selected from the ranks of the local and state membership. The Chair administers, organizes, and facilitates the actions of the IAB.

State & Local Chair
Robert J. Ingram, HazMat Operations - Fire Department, City of New York

Federal Agency Coordinating Committee (FACC)

The FACC is a coordination committee that provides the interface between the IAB and sponsoring federal government agencies.

Federal Chair
Paul Bergeron, Department of Defense, Office of the Deputy Assistant to the Secretary of Defense for Chemical/Biological Defense

Standards Coordination Committee (SCC)

The SCC ensures that weapons of mass destruction (WMD) response equipment and technology is integrated in the existing standards boards and regulatory bodies.

Co-Chair
Bruce Teele, National Fire Protection Association (NFPA)

Federal Co-Chair
Kathleen Higgins, National Institute of Standards and Technology (NIST), Office of Law Enforcement Standards (OLES)

Science and Technology (S&T) Committee

The S&T Committee is focused on advanced concepts entering development and newly emerging technologies that might be applied to crisis and consequence management.

Co-Chair
Vincent Doherty, Fire Department, City of New York (FDNY)

Federal Co-Chair
Gabriel Ramos, Technical Support Working Group (TSWG)

Personal Protective and Operational Equipment (PP&OE) SubGroup

The PP&OE SubGroup addresses individual equipment, support systems, and area protection for WMD response.

Co-Chair
Douglas Wolfe, Sarasota County (FL) Fire Department

Federal Co-Chair
Philip Mattson, National Institute of Standards & Technology (NIST), Office of Law Enforcement Standards (OLES)

Interoperable Communications and Information Systems (ICIS) SubGroup

The ICIS SubGroup deals with communications, information management, technical information support, and public awareness issues.

Co-Chair
Christopher Lombard, Seattle (WA) Fire Department

Federal Co-Chair
William Snelson, United States Marshals Service

Detection and Decontamination (D&D) SubGroup

The D&D SubGroup concentrates on intrusive and non-intrusive detection; monitoring, sampling, and analysis of suspected toxins; and methods to mitigate or dissipate a contamination.

Co-Chair
James Schwartz, Arlington County (VA) Fire Department

Federal Co-Chair
Elaine Stewart-Craig, Research, Development and Engineering Command (RDECOM), Edgewood Chemical and Biological Center (ECBC)

Medical SubGroup (MSG)

The MSG engages the issues of casualty treatment for victims of a conventional or non-conventional WMD attack and also preventive measures to avert victimization.

Co-Chair
Christian Callsen, Austin-Travis County (TX) Emergency Medical Services

Federal Co-Chair
Stephen Skowronski, Centers for Disease Control and Prevention (CDC)

Training SubGroup (TSG)

The TSG aims to improve responder mission performance through review of and input to training, doctrine, and guidance.

Co-Chair
Alan "A.D." Vickery, Seattle (WA) Fire Department

Federal Co-Chair
Barbara Biehn, Department of Homeland Security, Preparedness Directorate's Office of Grants and Training (G&T)

Organizational Chart

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                    ┌─────────────────┐       ┌─────────────────┐
                    │       The       │       │ Federal Agency  │
                    │   InterAgency   │- - - -│  Coordinating   │
                    │      Board      │       │   Committee     │
                    │      (IAB)      │       │     (FACC)      │
                    └─────────────────┘       └─────────────────┘
                    State & Local Chair         Federal Co-Chair
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The InterAgency Board (IAB)
State & Local Chair

Federal Agency Coordinating Committee (FACC)
Federal Co-Chair

Standards Coordination Committee (SCC)
Co-Chair
Federal Co-Chair

Science & Technology (S&T) Committee
Co-Chair
Federal Co-Chair

Personal Protective & Operational Equipment (PP&OE) SubGroup
Co-Chair
Federal Co-Chair

Interoperable Communications & Information Systems (ICIS) SubGroup
Co-Chair
Federal Co-Chair

Detection & Decontamination (D&D) SubGroup
Co-Chair
Federal Co-Chair

Medical SubGroup (MSG)
Co-Chair
Federal Co-Chair

Training SubGroup (TSG)
Co-Chair
Federal Co-Chair

Mission

The Federal Agency Coordinating Committee (FACC) provides the interface between the IAB Chair and the sponsoring federal government agencies. It coordinates the interests and initiatives of the federal community with the first responder community.

Membership

The FACC includes the U.S. Department of Defense (DoD); the U.S. Department of Homeland Security (DHS) which includes the Federal Emergency Management Agency (FEMA), NIMS Integration Center (NIC), the Preparedness Directorate's Office for Grants & Training (G&T), and the Science and Technology Directorate; National Institute for Occupational Safety and Health (NIOSH)/ National Personal Protective Technology Laboratory (NPPTL); and the National Institute of Standards and Technology (NIST)/Office of Law Enforcement Standards (OLES). A brief description from each of the federal partners is listed below.

Department of Defense—Chemical and Biological Defense Program

The Assistant to the Secretary of Defense for Nuclear and Chemical and Biological Programs [ATSD(NCB)] leads the Department of Defense (DoD) Chemical and Biological Defense Program (CBDP). The Deputy Assistant to the Secretary of Defense (Chemical and Biological Defense) [DATSD(CBD)] assists in the oversight of this program. The CBDP is a key part of a comprehensive national strategy to counter the threat of chemical and biological (CB) weapons as outlined in The National Strategy to Combat Weapons of Mass Destruction (WMD), December 2002.

CB defense capabilities must support the diverse requirements of military operations supporting national security as well as homeland security missions. The CBDP funds research to exploit leading-edge technologies to ensure that U.S. forces are equipped with state-of-the-art capabilities to defend against CB threats through the far term.

Through the DoD Installation Protection Program, the CBDP has significantly strengthened its efforts for protecting its installations against chemical, biological, radiological, and nuclear (CBRN) threats.

Federal Agency Coordinating Committee (FACC)

CHAIR

Paul Bergeron
Department of Defense, Office of the Deputy Assistant to the Secretary of Defense for Chemical/Biological Defense

Membership

Barbara Biehn
Department of Homeland Security, Preparedness Directorate's Office of Grants and Training

Les Boord
National Institute for Occupational Safety and Health, National Personal Protective Technology Laboratory

Bert Coursey
Department of Homeland Security, Science and Technology Directorate

Kathleen Higgins
National Institute of Standards and Technology, Office of Law Enforcement Standards

Pete Nacci
Department of Homeland Security, Preparedness Directorate's Office of Grants and Training

This program includes providing those emergency response personnel responsible for responding to CBRN events at an installation with the equipment and training they need to protect them and respond to the event.

As one of the founding organizations of the IAB, DoD continues to support all facets and areas of the IAB. DoD personnel serve on the FACC, participating in the development the overall IAB strategy, and hold memberships in all SubGroups and committees in the IAB.

Department of Homeland Security, the NIMS Integration Center

The NIC is responsible for the further development, maintenance and modification of the National Incident Management System (NIMS) and the National Response Plan (NRP) in accordance with HSPD-5 and MD 9500, to ensure the NIMS and NRP provide for a uniform national approach to all incident management activities and the application of Federal resources to meet State identified priority needs. This is accomplished through close coordination with the White House Homeland Security Advisory Council, Federal Departments and Agencies, State Departments and Agencies, Tribal Governments and Local Governments and the Standards Developing Organizations and Agencies. The NIC participates on the IAB through the Science and Technology Directorate. The Science and Technology Directorate representative to the FACC serves as a liaison to the NIC.

Department of Homeland Security, Preparedness Directorate's Office of Grants and Training

The Office for Grants and Training (G&T), formerly known as the Office for Domestic Preparedness (ODP), is the principal component of the Department of Homeland Security (DHS) responsible for preparing the United States to respond to acts of terrorism. G&T is part of the Preparedness Directorate and is responsible for developing and implementing a national program to enhance the capacity of state and local agencies to respond to catastrophic events and incidents of terrorism, particularly those involving CBRNE incidents.

G&T achieves its mission by providing grants to states and local jurisdictions to implement their homeland security strategies to include equipment purchases; providing training through mobile training teams, specialized in-residence facilities, and distance learning; funding and working with state and local jurisdictions to plan and execute exercises; and providing on-site technical assistance to state and local jurisdictions.

Peter Shebell, (Observer)
Department of Homeland Security, National Incident Management System Integration Center

Department of Homeland Security, Science & Technology Directorate

The Department of Homeland Security, Science and Technology (S&T) Directorate serves as the primary research and development arm of Homeland Security, using the nation's scientific and technological resources to provide federal, state, and local officials with the technology and capabilities to protect the homeland. The focus is on catastrophic terrorism—threats to the security of our homeland that could result in large-scale loss of life and major economic impact. S&T's work is designed to counter those threats, both by evolutionary improvements to current technological capabilities and development of revolutionary, new technological capabilities. The Standards Portfolio Office, within S&T, is the organization through which DHS adopts standards, and it is important to note that the first standards adopted by DHS were those adopted by the IAB. The S&T Standards Office provides the majority of the funds that support the standards development requirements identified by the IAB.

National Institute of Standards and Technology, Office of Law Enforcement Standards

The National Institute of Standards and Technology (NIST) is America's premier national laboratory for metrology and standards. An agency of the U.S. Department of Commerce, NIST was charged at its founding in 1901 with advancing measurement science, standards, and technology in support of U.S. industry and the country's economic security and quality of life. As technology progressed, NIST's capabilities expanded into world-class expertise in chemistry, physics, manufacturing, materials engineering, building and fire research, optics, electronics, and electrical engineering. Today, NIST is recognized worldwide as a leader in many areas of science and technology and boasts a history that includes three Nobel Prize laureates.

Beginning with the Great Baltimore fire in 1904 and the rise of forensic sciences in the 1910s, government agencies concerned with public safety and security turned to NIST for technical assistance. For decades, these cooperative efforts were informal. In 1971, in response to a Congressional mandate, NIST created its Office of Law Enforcement Standards (OLES) to partner with the Department of Justice and other agencies in establishing minimum performance standards for critical law enforcement equipment, such as body armor, handcuffs, metal detectors, and mobile radios. Here, too, NIST's capabilities quickly expanded to include technologies used by the fire service, corrections and security personnel, and forensic investigators.

OLES was invited to join the IAB Standards Coordination Committee in 1999. In 2000, the office was named executive agent of the standards development effort and quickly organized a coalition of government agencies and professional associations that has been extraordinarily effective in developing performance standards related to CBRNE detection, decontamination, and personal protection technologies and in issuing publications that help agencies select, maintain, and properly use this equipment. The performance standards developed by the coalition have been adopted by DHS as a basis for equipment procurement at all levels, and a multiyear plan is in place to continue this important work.

National Institute for Occupational Safety and Health, National Personal Protective Technology Laboratory

The National Personal Protective Technology Laboratory (NPPTL) was created by the National Institute for Occupational Safety and Health (NIOSH) in 2001 when Congress underscored the need for improved personal protective equipment (PPE) and encouraged research for personal protective technologies. Its mission is to prevent work-related injury and illness by ensuring the development, certification, deployment, and use of PPE and fully integrated, intelligent PPE ensembles through the advancement and application of personal protective technology standards.

NPPTL brings together experts from many disciplines dedicated to reducing the risk of job-related injury, illness, and death. Through targeted partnerships, research, service, and communication, NPPTL focuses on new and enhanced PPE for workers, including first responders during terrorist attacks or other disasters. NPPTL builds on NIOSH's long-standing testing and certification programs to test

and approve respirators for use in traditional work settings and by first responders against CBRN agents.

As one of the founding federal organizations of the IAB, NIOSH served as the first Co-Chair of the IAB Standards Coordination Committee. NIOSH and NIST/OLES were the principal architects of the interagency agreement that serves as the foundation of the IAB standards development efforts. In addition to certifying respirators that offer protection against CBRN agents, NIOSH develops and issues the performance standards for those devices, which are used by our nation's emergency responders. NPPTL staff support the IAB Personal Protective and Operational Equipment Subgroup and participate as members of the National Fire Protective Association (NFPA) technical committees having responsibility for fire and emergency services protective clothing and equipment performance standards.

NPPTL applies state-of-the-art science to meet the increasingly complex occupational safety and health challenges of the 21st century. Its strategic research programs will ensure that the development of new PPE technologies keeps pace with the changing needs and requirements of employers and workers.

Role and Functions

The FACC provides the funding for operation of the IAB. Continued representation by multiple federal agencies allows the IAB to maintain its independence as an organization as well as to best use the resources and expertise of the federal community. Those agencies/departments that fund the IAB have voting rights on the FACC.

Upon unanimous agreement between the federal partners, DoD served as the FACC Chair of the IAB in 2005. The FACC Chair is elected on an annual basis. The DHS (G&T, NIC, S&T) and NIOSH will subsequently serve as FACC Chairs.

The FACC leverages ongoing federal research, development, and testing, and evaluation (RDT&E) efforts to meet the responder requirements as identified by the IAB. The Chair of the IAB and the FACC work together to prioritize initiatives within the IAB and the federal community. The FACC also coordinates ongoing IAB initiatives within the federal community to ensure task completion and to prevent duplication of efforts. This interagency relationship benefits both the IAB and the federal community by improving protection and response.

Highlights for 2005

- SEL released electronically in two versions "Spring 2005" and "Fall 2005"

- Established IAB Training SubGroup. Established mission, updated IAB charter, outlined objectives, and engaged initial membership at IAB Board Meetings.

- Significant accomplishments in aligning content and taxonomy of the AEL with the SEL with the Responder Knowledge Base (RKB). Continued coordination with the RKB.

- IAB members reviewed and provided feedback to DHS on the Universal Task List and Target Capabilities List.

- Increased IAB visibility with exhibitions at GOVSEC/US LAW/READY and FPED supported with panel and speaking engagements from IAB members at over 15 conferences and events.

- Published IAB information in both Police Chief Magazine and Fire Apparatus magazine.

- Developed an "IAB Brochure" outlining the work and mission of the IAB for distribution.

- Continued development of the IAB website and list-serve capabilities with integrated profiles, live

calendar, polling backbone, auto updated mailing lists - creating a one stop data repository able to be updated by IAB membership and Program Office staff.

- Updated the IAB Charter to reflect the Training SubGroup.

- Establishment of the "Strategic Planning" work session and subsequent "Ad Hoc" group to look at long term strategic planning.

- Electronic integration and updated process for S&T requirements matrix into the RKB. Implemented a new S&T prioritization process to gather SubGroup S&T requirements.

- Management of over 20 IAB meetings, work sessions, or related meetings with IAB member participation.

- Provided multiple federal agency funding for the continued operation of the IAB.

- Added new federal partner to the FACC, the Office of Interoperability and Compatibility.

The FACC continues to work with the SCC to address the IAB's list of priorities, particularly with the development of CBRNE equipment standards, and to coordinate this development with other public and private standards development organizations, both within and outside the federal government.

The FACC review and approves the annual operating budget for the IAB and maintains a support staff to facilitate operations. The FACC meets with the IAB Chair on a regular basis to review SubGroup recommendations and action items.

FACC Chair

Paul G. Bergeron
Senior Program Analyst
Office of the Assistant to the Secretary of Defense
Nuclear and Chemical and Biological Defense Programs

Paul Bergeron serves as a Senior Program Analyst for the Office of the Deputy Assistant to the Secretary of Defense (Chemical Biological Defense [CBD]). He is responsible for CBD Interagency coordination; Chemical, Biological, and Radiological Installation Protection oversight, coordination, and integration; and extending DoD CB expertise to the civilian sector. Mr. Bergeron is a member of the DoD Acquisition Corps and holds Level 3 certification in Program Management as well as Systems Planning, Research Development, and Engineering. Mr. Bergeron has a B.S. in chemical engineering from the University of Massachusetts and is a graduate of the Industrial College of the Armed Forces, where he received an M.S. in National Resource Strategy from the National Defense University.

Mission

The mission of the SCC is to assist the SubGroups in identifying existing standards, facilitating standards development requirements, and prioritizing those requirements. The SCC assists in identifying minimum performance standards and compliance testing programs for the types of CBRNE equipment that first responders' need most.

In preparing for possible CBRNE attacks, our nation's emergency response agencies must know more than simply what types of equipment to buy. They have to know which equipment they can trust with their lives and the lives of the citizens they serve. They also need assurance that various types of equipment intended to be used together (for example, CB protective clothing, air-purifying respirators, and radio headsets) are functionally compatible.

For more than 30 years, establishing minimum performance standards for critical equipment and testing available models for compliance with those performance standards has proven the most successful way to give criminal justice and public safety practitioners the objective guidance they need for making informed buying decisions.

Membership

The SCC consists of representatives from federal and private standards development organizations and the SubGroup/Committee Co-Chairs. NIST/OLES serves as the committee's executive agent, charged with administering, maintaining, and promulgating the CBRNE equipment standards identified for development or adopted by the IAB.

Role and Functions

The SCC's role is to support and coordinate the efforts of the IAB SubGroups on standards develop-

Standards Coordination Committee (SCC)

CO-CHAIR

Bruce Teele
National Fire Protection Association

FEDERAL CO-CHAIR

Kathleen Higgins
National Institute of Standards and Technology, Office of Law Enforcement Standards

Membership

Barbara Biehn
Department of Homeland Security, Preparedness Directorate's Office of Grants and Training

Les Boord
National Institute for Occupational Safety and Health, National Personal Protective Technology Laboratory

Roberta Breden
Department of Homeland Security, Preparedness Directorate's Office of Grants and Training

Christopher Callsen
Austin - Travis County (TX) Emergency Medical Services

Vincent Doherty
Fire Department, City of New York (NY)

James Gass
National Memorial Institute for the Prevention of Terrorism

ment initiatives. Within that role, the SCC performs a number of functions:

- Review CBRNE equipment performance criteria developed by the SubGroups.

- Identify contradictions among criteria proposed for complementary equipment, as well as contradictions between proposed criteria and existing state and federal regulations.

- Facilitate the conciliation of contradictory criteria.

- Assist the SubGroups in identifying applicable existing standards and related standards development efforts by regulatory, consensus, and voluntary standards organizations.

- Coordinate the SubGroups' CBRNE equipment standards programs with those of other organizations and enforcing authorities, such as NIOSH, NFPA, the Occupational Safety and Health Administration (OSHA), the National Institute of Justice (NIJ), the Department of Energy (DOE), DHS, the Environmental Protection Agency (EPA), ASTM International, the American National Standards Institute (ANSI), and NIST/OLES.

- Support the development of new standards, when applicable.

- Provide advice on improving existing standards and standards development methods.

- Recommend new regulations and standards for unaddressed equipment.

- Promote harmonization of regulations, standards, and guidelines related to CBRNE emergency response equipment.

- Establish and periodically review priorities for the SubGroups' standards development and standards adoption efforts.

- Develop, maintain, and publish the list of IAB-adopted CBRNE protective equipment standards and develop a schedule for reviewing and revising these standards.

- Research, publish, and regularly update CBRNE equipment guides and equipment care and maintenance guides to assist the emergency response community in selecting, using, and caring for CBRNE equipment.

- Promote equipment interoperability by working in partnership with standards development organizations, trade associations, and manufacturers.

Stephan C. Graham
United States Army Center for Health Promotion and Preventive Medicine

Robert Johns
Department of Homeland Security, Office of Grants and Training

Christopher Lombard
City of Seattle (WA) Fire Department

Philip Mattson
National Institute of Standards and Technology, Office of Law Enforcement Standards

Gabriel Ramos
Technical Support Working Group

James Schwartz
Arlington County (VA) Fire Department

Steve Skowronski
Centers for Disease Control and Prevention

William Snelson
United States Marshals Service

Elaine Stewart-Craig
Research, Development and Engineering Command, Edgewood Chemical Biological Center

Alan "A.D." Vickery
City of Seattle (WA) Fire Department

Douglas Wolfe
Sarasota County (FL) Fire Department

The SCC coordinates CBRNE equipment standards activities within the IAB and links those activities to both outside standards development efforts and the first-responder community. The objective is to focus the nation's resources and expertise in a common effort that meets the real-world needs of the emergency response community, while also eliminating unnecessary duplication of effort; addressing critical gaps in standards research; and ensuring both harmony among CBRNE equipment standards and the effectiveness, safety, and interoperability of the equipment itself.

To ensure the highest levels of coordination and cooperation among agencies, the SCC has instituted numerous interagency agreements (IAAs) and memoranda of understanding (MOUs) among federal, nonprofit, and private standards agencies, including NIOSH, NIST, OSHA, DoD, NIJ, the U.S. Army's Edgewood Chemical Biological Center (ECBC, formerly SBCCOM), EPA, DOE, ANSI, and NFPA. These IAAs and MOUs have proven invaluable in launching this nation's CBRNE equipment standards effort and achieving remarkable results in a very brief time.

Initiatives and Progress

Since the publication of the 2004 IAB Annual Report, the SCC has progressed on several fronts:

- Continued efforts with NIOSH, along with ECBC and NIST, to develop appropriate standards and test procedures for all classes of respirators that will provide respiratory protection from CBRN agents' inhalation hazards. A standards development effort for the development of a CBRN standard for powered air-purifying respirators (PAPRs) is ongoing.

- Continued efforts within the IAB to align the SEL with the G&T Authorized Equipment List (AEL). Two versions of the SEL will be prepared per year, one in the spring with the annual report and the second offered only online with the AEL.

- Continued to revise the IAB list of standards development priorities.

- Continued to establish and strengthen ties with DHS.

- Assisted in the initial coordination with the Detection and Decontamination SubGroup of the development of standards for both chemical and biological detection devices. Development of test metrics and subsequent standards are currently under way.

- Assisted in the coordination in expanding the IAB Charter to include training. A Training SubGroup was established to facilitate the integration of a training component into the existing IAB Infrastructure.

- Assisted in the IAB adoption of six relevant standards (others are pending for consideration):

  – ANSI Z87.1 – Occupation and Education Personal Eye and Face Protection Services

  – NFPA 1851 – Standard on Selection, Care, and Maintenance (SCaM) of Structural Firefighter Protective Clothing

  – NFPA 1852 – Standard on Selection, Care, and Maintenance (SCaM) of Open-Circuit Self-Contained Breathing Apparatus

  – NFPA 2113 – Standard on SCaM of Flame-Resistant Garments for Protection of Industrial Personnel from Flame Fire

  – NIJ 100-01 – Selection and Application Guide to Personal Body Armor (2001, replaces NIJ 100-98)

  – Global Justice XML Data Model (JXDM)

- Continued coordination with G&T's requirement that grants for the purchase of CBRNE equipment be tied to equipment performance standards.

- Continued the integration of the SEL into the G&T-funded National Memorial Institute for the

Prevention of Terrorism (MIPT) Responder Knowledge Base, an all-inclusive resource of information for the public safety community.

- Continued assistance in the integration of a five-volume series of NIJ Guides for the Selection of Equipment for Emergency Responders into the MIPT Responder Knowledge Base. The five guides focus on the following:

  – biological detection equipment

  – chemical detection equipment

  – chemical and biological decontamination equipment

  – communications equipment

  – personal protective equipment

- Continued endorsement of free online access (through NFPA's Web page) to relevant NFPA standards regarding response, protective clothing and equipment, and CBRNE training.

Ongoing Partnerships

The core success of the SCC lies in its ongoing partnerships throughout the IAB and with outside organizations. These efforts will continue throughout the coming year:

- Serving as liaison to standards development organizations (SDOs) and other organizations regarding testing methods; certification requirements; and issues of equipment selection, use, and care.

- Working with the SubGroups to achieve the following:

  – Develop recommendations to industry for increasing compatibility and interoperability of equipment in the SEL.

  – Identify existing standards and specifications that relate to performance criteria for equipment in the SEL.

  – Redefine and revise the SubGroups' standards development priorities to meet changing needs in the emergency response community.

- Focusing special effort on identifying existing performance standards and test methods that could be adopted or modified for top-priority equipment.

Priorities in Standards Development

The IAB Strategic Plan assigns the SCC responsibility for setting priorities among the SubGroups' standards programs, based on the needs of the emergency response and public safety communities. At this writing, the priorities have been established as follows (in descending order):

- respiratory equipment

- detection performance standards and/or performance specifications

  – chemical vapor detection

  – biological

  – radiological/nuclear

  – explosives

- protective clothing/equipment

- decontamination agents, solutions, materials, and equipment

- interoperable communications
- medical respiratory ventilators

Considerable work on respiratory equipment standards continues, with a PAPR standard currently under development. Additional performance standards for CBRN self-contained breathing apparatuses (SCBAs), air-purifying respirators (APRs), and escape hoods have already been developed, and compliance testing programs are in place for SCBAs and APRs. Additional information can be found in the individual SubGroup reports, later in this report.

The ranking of priorities continually shifts as standards are completed and new ones rise to the top. Changes in threats also affect the ranking. For example, authorities are increasingly concerned about the threat of explosives, and the growing urgency for reliable explosives detection devices in the field could easily push a standard for such devices well up the list.

Protective CBRNE Standards "Adopted" by the IAB

The SCC is responsible for publishing and continually updating the list of CBRNE protective equipment standards officially adopted by the IAB. As of this writing, the list and year of adoption are as follows:

(** indicates newly adopted standard)

ANSI Standards

** ANSI Z87.1 – Occupational and Education Personal Eye and Face Protection Devices**	2005
N42.35 – Evaluation and Performance of Radiation Detection Portal Monitors for Use in Homeland Security	2003
N42.34 – Performance Criteria for Handheld Instruments for the Detection and Identification of Radionuclides	2003
N42.33 – Radiation Detection Instrumentation for Homeland Security	2003
N42.32 – Performance Criteria for Alarming Personal Radiation Detectors for Homeland Security	2003
NSF/ANSI 5-2000 – Water Heater, Hot Water Support Boiler	2004
ANSI Z89.1 – Protective Headwear for Industrial Workers	2003
ANSI/ISEA 105 – American National Standard for Hand Protection Selection Criteria	2003
ANSI/ISEA 107 – American National Standard for High-Visibility Safety Apparel	2003

National Fire Protection Association Standards

NFPA 1851 – Standard on SCaM of Structural Firefighter Protective Clothing	2005
NFPA 1852 – Standard on SCaM of Open-Circuit Self-Contained Breathing Apparatus	2005
NFPA 2113 – Standard on SCaM of Flame-Resistant Garments for Protection of Industrial Personnel from Flame Fire	2005
NFPA 1936 – Standard on Powered Rescue Tool Systems (1999 Edition)	2003
NFPA 1951 – Protective Ensemble for Urban Search and Rescue Operations (2001 Edition)	2002
NFPA 1971 – Standard on Protective Ensemble for Structural Fire Fighting (2000 Edition)	2003
NFPA 1975 – Station/Work Uniforms for Fire and Emergency Services (2004 Edition)	2003
NFPA 1976 – Standard on Protective Ensemble for Proximity Fire Fighting (2000 Edition)	2003
NFPA 1981 – Open-Circuit Self-Contained Breathing Apparatus for Fire and Emergency Services (2002 Edition)	2002
NFPA 1982 – Standard on Personal Alert Safety Systems (PASS) (1998 Edition)	2003
NFPA 1983 – Standard for Fire Service Life Safety Rope and System Components (2001 Edition)	2003

NFPA 1991 – Vapor-Protective Ensemble for Hazardous Materials Emergencies (2000 Edition)	2002
NFPA 1992 – Standard on Liquid Splash–Protective Ensembles and Clothing for Hazardous Materials Emergencies	2003
NFPA 1994 – Protective Ensemble for Chemical/Biological Terrorism Incidents (2001 Edition)	2002
NFPA 1999 – Protective Clothing for Emergency Medical Operations (2003 Edition)	2002
NFPA 2112 – Standard on Flame-Resistant Garments for Protection of Industrial Personnel Against Flash Fire (2001 edition)	2003

National Institute for Occupational Safety and Health Standards

NIOSH CBRN Standard for Open-Circuit Self-Contained Breathing Apparatus (December 2001)	2002
NIOSH Standard for CBRN Full-Facepiece Air-Purifying Respirator (APR)	2003
NIOSH Standard for CBRN Air-Purifying Escape Respirator and CBRN Self-Contained Escape Respirator (October 2003)	2003

Association of Analytical Chemists (AOAC)

AOAC Test Methods for Bio Handheld Detectors	2004

National Institute of Justice Standards

NIJ 100-01 Selection and Application Guide to Personal Body Armor (replaces NIJ 100-98)	2005
NIJ Standard 101.04 – Ballistic Resistance of Personal Body Armor (September 2000 edition)	2003

Underwriters Laboratory (UL) Standards

UL Gas and Vapor Detectors and Sensors (1st Edition) November 5	2004
UL 913 – Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous (Classified) Locations	2003

U.S. Department of Justice (DOJ) Standards

Global Justice XML Data Model (JXDM)	2005

In addition to the standards adopted by the IAB, a number of other standards are included as referenced standards because they may have partial applicability to some aspects of equipment in the SEL, may be of general interest, or in some cases are part of the Code of Federal Regulations. A comprehensive list of the adopted and referenced standards is included at the end of the SEL.

Future Initiatives

The process of developing a minimum equipment performance standard often takes a number of years. This is especially true when, as in the case of CBRNE equipment, the threats involved are new and, until recently, largely unquantified. Nonetheless, progress has been rapid, and the IAB's SubGroups have identified the requirements that form the basis of a number of standards programs under way. Those nearest to completion include upcoming NIOSH standards for the following:

- CBRN Powered Air-Purifying Respirators (PAPRs) (FY 2006)

- CBRN Air-Purifying Respirators (APR) Retrofit Kit (FY 2006)

- CBRN Combination SCBA/PAPR (FY 2006)

- CBRN Combination SCBA/APR (FY 2006)

- CBRN Closed-Circuit SCBA (FY 2006)

- CBRN Supplied-Air Respirators (SARs) (September 2006)

- CBRN Combination SCBA/SAR (June 2007)

- Development of Standard and Evaluation Criteria for Biological Detection

- Development of Standards and Evaluation Criteria for Commercial Chemical Detection Devices

- Development of Standards and Evaluation Criteria for Commercial Explosive Detection Devices

- Decontamination and Detection Commercial Standards Update

ECBC continues to conduct essential live-agent and simulant-based research on chemical and biological warfare agents and their effects on the PPE used by emergency responders. Additionally, scientists from ECBC and the Army Research Laboratory are collaborating in developing a rigorous test methodology that can be used as a benchmark for assessing the health effects associated with the approximate levels of removal required during decontamination to reduce or eliminate all lasting health effects.

The National Protection Center in Natick, Massachusetts continues its study of selectively permeable membrane technology, which has potentially important applications against CBRN agents. The NFPA 1994 Technical Committee reviewed its standard for ensemble technology in light of this study and expects to publish a revised standard in FY 2006.

NIST/OLES will continue its management of CBRNE standards development efforts, first funded by NIJ in FY 2001–2002, then by DHS in FY 2003–2004. Early on, these programs established the health and hazard assessment data since used by NIOSH to develop CBRNE SCBA and APR standards. Now these data, together with information from additional percutaneous assessments, are being used to develop protective ensemble standards and a chemical vapor detector standard.

In 2006 NIST/OLES's management role will continue to include standards programs for devices to detect chemical, biological, nuclear, and conventional explosive threats. Under NIST/OLES's leadership, an intensive effort by DHS, DOE, and NIST's Physics Laboratory has produced a set of radiation detection standards published in FY 2004 by ANSI. Continued emphasis will be placed on testing and performance requirements for radiation detection equipment, including radiation pagers, portable instrumentation, and portal monitors.

The IAB SCC recognizes the importance of appropriate training for many ongoing efforts and of the items listed within the SEL. The SCC recommended performance standards directly relating to equipment items on the SEL. It is anticipated that any training recommendations would be based upon existing training standards or educational competencies.

Summary

The importance of standards in preparing for and responding to CBRNE threats cannot be overstated. The IAB's SubGroups are in the vanguard of America's effort to develop critical equipment standards as quickly as possible. By continuing to coordinate the activities of these SubGroups and harmonize with the efforts of agencies and organizations throughout the public and private sectors, the SCC continues to make valuable contributions to the safety of first responders and the security of the United States.

SCC Chairs

Bruce Teele
Senior Safety Specialist
National Fire Protection Association

Bruce Teele has been with NFPA for nearly 36 years and is currently the Senior Safety Specialist. He has served as the staff liaison for the emergency responder protective clothing and equipment project for 27 years. This project has responsibility for over 16 documents either under development or as part of the NFPA standards. Mr. Teele has a broad background with emergency services occupational safety and health and coordinates safety and health issues among several governmental, industry, and private sector organizations and with the NFPA standards system.

Kathleen M. Higgins
Director, Office of Law Enforcement Standards
National Institute of Standards and Technology
Assistant to the Director for Homeland Security

Kathleen Higgins began her career as a forensic chemist, serving in the public sector, cofounding a private forensic laboratory, and working in forensic science education. After managing materials development programs for the U.S. Postal Service Engineering and Development Center for several years, she was appointed Director of the Office of Law Enforcement Standards at the National Institute of Standards and Technology (NIST). Under her leadership, the office has grown from a handful of programs with a budget of $1 million to more than 50 active projects with a budget near $60 million. In 2001 the Department of Commerce awarded Ms. Higgins its Silver Medal for Outstanding Achievement, and George Washington University honored her in 2002 for extraordinary service to the federal government and the nation. In November 2003, she was appointed Assistant to the Director for Homeland Security and as such chairs the Homeland Security Strategic Working Group at NIST. Ms. Higgins is the author of several forensic science journal articles; a Fellow of the American Academy of Forensic Sciences; and a member of several professional organizations, including the ASTM E54 Committee on Homeland Security Applications (Chair), the International Association for Identification, the National Fire Protection Association, the International Association of Bomb Technicians and Investigators, and the International Association of Chiefs of Police (Homeland Security Committee). Ms. Higgins was recently appointed Chair of the U.S. delegation to the International Organization for Standardization's Strategic Advisory Group on Security.

Mission

The Science and Technology (S&T) Committee's mission is to identify interagency (local, state, and federal) first-responder research and development requirements and innovative technologies (fieldable in the next six months to five years) that address CBRNE detection, individual protection, collective protection, medical support, decontamination, communications systems, information technology, and miscellaneous operational support.

Role and Functions

The primary functions of the S&T Committee are to develop and update the IAB S&T Requirements Matrix for inclusion in the SEL, coordinate IAB representation on federal requirements boards, record and collate requirements of individual SubGroups, report to SubGroups on federal requirement initiatives, and assess innovative government- and industry-developed technologies. The IAB S&T Requirements Matrix (following this section) identifies future technology needs for detection, individual protection, collective protection, medical support, decontamination, communications systems, information technology, and operational equipment.

Initiatives and Progress

During 2005, the S&T Committee accomplished the following:

- Designated SubGroup Chairs as mission area leaders responsible for detailed review and prioritization of S&T needs and projects.
- Reviewed the draft 2004 SEL to ensure future needs were included in the S&T Requirements Matrix.
- Reconciled the S&T Requirements Matrix with previous federal interagency research and development requirements efforts.
- Updated the S&T Requirements Matrix for publication in the annual report.

Science & Technology (S&T) Committee

CO-CHAIR

Vincent Doherty
Fire Department, City of New York (NY)

FEDERAL CO-CHAIR

Gabriel Ramos
Technical Support Working Group

Membership

Edward Bergamini
Fire Department, City of New York (NY)

Barbara Biehn
Department of Homeland Security, Preparedness Directorate's Office of Grants and Training

Les Boord
National Institute for Occupational Safety and Health, National Personal Protective Technology Laboratory

Brett Burdick
Virginia Department of Emergency Management

Christopher Callsen
Austin - Travis County (TX) Emergency Medical Services

Bert Coursey
Department of Homeland Security, Science and Technology Directorate

Gerard Fontana
Boston (MA) Fire Department

Kathleen Higgins
National Institute of Standards and Technology, Office of Law Enforcement Standards

Christopher Lombard
Seattle (WA) Fire Department

- Prioritized SubGroup requirements for industrial and federal partners.
- Coordinated input into federal requirements meetings to leverage IAB-prioritized requirements submissions.

The S&T Committee is currently formalizing the requirements generation and prioritization process using a phased approach.

Ongoing Initiatives in 2006

The S&T Committee will establish an "innovative technologies" reference database that provides information on types of emerging technical advances, status of development, industry or government source, and possible need for new standards development because of the emerging technology. The guide will cover the eight focus areas within S&T and will receive input from designated SubGroup Chairs. This information will be published in an electronic "matrix" that will link with requirements as well as existing technologies, allowing the information to be cross-referenced. The S&T Matrix has begun to be integrated as a content area of the Responder Knowledge Base (RKB, www.rkb.mipt.org).

The S&T Committee has also established an SME database of various disciplines for the IAB SubGroups to consult and use when inviting guest SMEs as needed for work in specific issue areas.

Philip Mattson
National Institute of Standards and Technology,
Office of Law Enforcement Standards

Neal Pollard
Georgetown University Walsh School of Foreign Service

Thomas Richardson
Seattle (WA) Fire Department

James Schwartz
Arlington County (VA) Fire Department

Stephen Skowronski
Centers for Disease Control and Prevention

William Snelson
United States Marshals Service

Elaine Stewart-Craig,
Research, Development and Engineering Command,
Edgewood Chemical Biological Center

Debra Stoe
National Institute of Justice

Bruce Teele
National Fire Protection Association

Alan "A.D." Vickery
City of Seattle (WA) Fire Department

Douglas Wolfe
Sarasota County (FL) Fire Department

Observers

Peter Shebell
Department of Homeland Security, National Incident
Management System Integration Center

Susan Ballou
National Institute of Standards and Technology,
Office of Law Enforcement Standards

Transfer of Technology Items and Equipment in Support of Homeland Security

[Public Law 107-314 (December 2, 2002): Sec. 1401]

By Vincent J. Doherty

***Technology Transfer Background:** DoD, in accordance with Title XIV, Section 1401 of Public Law 107-314 is identifying, evaluating, deploying, and transferring technology needed for homeland security to federal, state, and local first responders. DoD chartered the Office of the Assistant Secretary of Defense for Homeland Defense (OASD[HD]) as the Responsible Senior Federal Official to lead this effort. OASD(HD) has facilitated the development of a technology transfer process to enhance the transfer of technology from DoD to the public safety community. The process was developed through a series of interagency meetings between OASD(HD) and representatives from Department of Homeland Security's Office for Interoperability and Compatibility and the Department of Justice's National Institute of Justice.*

In December 2002, Congress passed a Public Law that called for a designated Responsible Senior Official to coordinate all Department of Defense (DoD) efforts to identify, evaluate, deploy, and transfer to federal, state, and local first responders technology items and equipment in support of homeland security. That official was assigned the following responsibilities:

- identify technology items and equipment developed or being developed by DoD components
- cooperate with federal officials outside DoD to evaluate useful technology items and equipment
- facilitate the timely transfer of these technologies
- identify and eliminate redundant and unnecessary research efforts
- expedite the advancement of high-priority DoD projects from research through implementation of initial manufacturing
- participate in outreach programs established by appropriate federal government officials outside DoD to communicate with first responders and to facilitate awareness of available technology items and equipment to support responses to incidents

Presently, technology items and equipment are available to emergency responders mainly through private-sector companies. What effect will this law have on technologies available to emergency responders?

The most significant near-term outcome of this initiative is to provide focus on technology transfer to emergency responders. This process was specifically designed to be first responder driven, meaning that all identified technology items and equipment will be vetted through knowledgeable and experienced first responder practitioners. The process will provide for a single point of coordination to comprehensively leverage what works and expedite rapid prototyping. Most important of all, this process will facilitate the awareness of first responders to the identified and available DoD technology items. A technology transfer process pilot to be conducted will use first responders with commensurate subject matter experience to identify, evaluate, prioritize, and validate high-priority technologies before they are recommended for transfer. This process will identify best practices and plans of action to expedite the transfer of the initially identified technologies to the public safety community.

The long-term goals of the program are to successfully expedite the transfer of technologies to the public safety community, expand the use of technologies to the broader public safety community, and to

build awareness of and support for the "Sec. 1401" Technology Transfer Program through coordination with existing technology transfer initiatives.

The initial role-out of the program highlighted five items of technology and equipment. Three were actual pieces of developed equipment and two were knowledge-sharing, software-based products from DoD. The first was a spectrometer using laser-induced breakdown spectroscopy (LIBS) technology or laser-induced plasma spectroscopy (LIPS), which has both point detection and standoff capability. This instrument is capable of real-time identification and analysis of unknown materials. It requires no sample preparation and comes in various configurations, such as packed into a portable case or a wearable, backpack unit that is basically "firefighter proof." Three other spectrometers that utilize multiple technologies and methodologies are in field use by HAZMAT units across the nation. These spectrometers have been used with great success as front-line, downrange, unknown material identifiers. One technology uses a gas chromatograph and a small separation column that fractionates samples in tandem with a mass spectrometer to produce a spectral signature that identifies liquid and gaseous unknowns. The second technology uses an infrared (IR) beam to excite molecules in both solid and liquid samples to produce IR feedback spectra. The third uses Raman spectrometry, which applies a laser as the power to excite the molecules of solid, liquid, and dissolved solids in liquids. Each methodology has its own value and complements the other. The LIBS technology extends first responder capability to quickly identify materials using minute samples and gives real-time results from downrange operations. The suite of sensors that is available with this instrument make biological and explosive real-time identification a reality.

The next piece of technology is coming from the U.S. Navy—a fine water mist system that atomizes water under low pressure and maximizes the surface area of the water. The system allows the firefighter to use less water, which can be very important in HAZMAT applications; reduces property water damage; and, because a smaller-diameter hose is used, reduces firefighter fatigue. This technology will have an impact for both fire-ground use and decontamination operations. There are high expectations for this particular piece of technological equipment to reduce decontamination "gray water" runoff and for use at metal and electrical fire incidents. As this novel technology is used, more and more imaginative operational applications will come to light.

The next technology is a multimode communications system that operates in a GPS, 900 MHz denied environment. The system incorporates a wireless communications network, wearable situational awareness sensors, and a mobile command system. This system and parts of it have multiple applications for the public safety community. The technology can be adapted for "in-suit" communications procedures, but it was initially intended and is excellent for underground tunnel and subway incidents along with high-rise and large-footprint building applications.

The first of the software technologies evaluated is the Bomb Information Sharing and Collaboration Network (BISCNet), which provides timely information sharing, thus increasing responder safety. The software and network system targets bomb squads, EMS, HAZMAT units, and SWAT and USAR teams. It provides real-time information sharing and intelligence along with the ability to compute critical field calculations during operations. The network was developed by Eagan, McAllister Associates, Inc. and is presently deployed in the New York City, Boston, and Philadelphia bomb squads.

The final technology is again Web-based and provides real-life, real-time scenarios that facilitate interagency coordination. It also reinforces incident management best practices, provides consistent training for all practitioners, and provides for post-incident review and feedback. The system provides a virtual incident command training environment and simulation with realistic modeling. The system was developed for the Army by the War Fighter Protection Lab, Intergraph Corp, SAIC, and the University of Alabama. Because of responder feedback, the system is being modified by developing a training curriculum that enforces the key principles of the National Incident Management System (NIMS) through tabletop exercises based on the 15 potential crisis scenarios from DHS.

These initial technologies from DoD represent only the tip of the iceberg that DoD has to offer. It is the opinion of the author that a multitude of technologies within DoD would be advantageous for the responder community to acquire. DoD has cracked the door open for these technologies to present themselves. It is now the responder community's responsibility to employ to maximum effect the few technologies that DoD has provided and require further access to other technologies essential to the first responder's ability to secure the homeland.

About the author: Vinny Doherty is a Captain and a 25-year veteran of the Fire Department of New York City, with 21 years of experienced in the field of HAZMAT response and mitigation. He was a charter member of HazMat Company 1, FDNY, and also served as a Lieutenant and Captain, Company Commander, of that unit. Prior to his Fire Service career, he was a chemist for Fisher Diagnostics and received his master's degree in Security Studies, Homeland Security, from the Naval Postgraduate School, Monterey, California. He is presently serving as a Senior Fellow/Practitioner at the Department of Homeland Security.

Information for this article was taken from materials provided by Touchstone Consultants Inc., specifically, Mr. Donald Lapham, 1401 Program Manager, Donald.Lapham@osd.mil.

S&T Matrices

The remainder of this section consists of two matrices. The first is entitled "First Responder Requirements for R&D Projects" and presents a prioritized list of requirements developed in 2005 by the S&T Committee, with input from various groups within the IAB. For each requirement, the matrix provides the following:

- reference number
- originating subgroup (e.g., the D&D SubGroup or the S&T Committee itself)
- short description of the requirement
- key operational/logistical constraints
- sample operational scenario
- summary of current capabilities
- list of disciplines affected.

The goal of the committee is to promote research and development in support of these responder requirements.

The second matrix is entitled "Summary of Current Research and Development by SEL Category." It lists requirements for which ongoing R&D programs have been identified or established. These requirements no longer appear in the previous matrix because one or more programs are now under way (a few duplicates may appear for projects in transition). For each requirement, this matrix shows:

- requirement number (includes the SEL section and a tracking number)
- short description of the requirement
- one or more specific projects that either partially or totally address the requirement
- agency or group that has taken ownership of a requirement; entry into this column does not necessarily mean that a project has received funding
- estimated timeframe during which a solution will be available (generally indicates that the project has received its funding).

First Responder Requirements for R&D Projects (Compiled by the IAB S&T Committee, 2005)

Refer-ence #	Originating SubGroup	Requirement	Key Operational/Cost/ Logistical Constraints	Operational Scenario	Current Capabilities	Disciplines Affected
17-05	D&D	Explosives detection devices capable of detecting "non-traditional" IED (e.g. TATP, HMTD, etc.).	User friendly explosives detection by personnel with awareness/operations level training.	Screening large groups of passengers/customers in mass transit scenario.	NA	LE
007-05	S&T	Incident Management Training & Qualification system for urban incident managers	Need educational capacity to train large number of incident managers in variety of IMT positions. Need credentialing of personnel in positions.	Large scale and long duration incidents need qualified and trained managers. Urban environments benefit best by managers with experience and training focused on multi-hazard needs.	Currently, Incident Management Team training is not widely available (West Coast focused) and process is wildland focused in some cases, requiring wildland deployment for certification.	All public safety.
004-05	S&T	Bi-directional antennas for assured communication in new large area or high-rise buildings.	Radios must work inside large area and high-rise buildings throughout.	Units responding to incident need assured communication in all facilities.	Intermittent capacity for radio communication in these kinds of buildings.	Public Safety / Building Code Officials
001-05	ICIS	A Portable Radio/accessory combination that will allow for 1) hands-free, intercom style communications via portable radios amongst a small group (3-5) in close proximity to each other (≤ 30'), 2) Simultaneous ability to listen to a CMD Channel and, when keying a microphone, to talk on the command channel.	Unknown	A fire company working a house fire has unfettered communication among themselves (truck company coordinating a search) and can also hear fireground traffic. If any member wishes to talk to command or another group, they'd key their radio microphone.	Companies like Firecom, already make identical, hard-wired, systems for use in vehicles such as fire engines and trucks. We'd like to see that extended outside the apparatus... (to portable radios).	Fire, Hazmat, LE,
006-05	S&T	Secure Knowledge & Inform-ation Exchange System	Assured digital communication of voice, text, visual data. Encrypted/secured. Multi-band, hand-held, non-internet based device with GPS location capability.	Want assured communications in austere environments inside buildings or where systems can become overloaded. Need secure communications for sensitive traffic.	Most systems fail in large scale events due to capacity requirements or destruction of infrastructure.	All public safety. DoD. Intelligence.
002-05	D&D	Police/SWAT SCBA CBRNE approved SWAT Respirator package/ensemble.	No bells or whistles, low visibility. Possible substitution of vibration signals for low air warning. Need to work with NIOSH, NFPA, OSHA rules & standards.	SWAT team response to CBRNE/Meth lab need for stealth. Rescue in chem environment.	SCBA are standardized with pass alarms and loud indicators.	LE/ SWAT

First Responder Requirements for R&D Projects (Compiled by the IAB S&T Committee, 2005) - *Continued*

Reference #	Originating SubGroup	Requirement	Key Operational/Cost/ Logistical Constraints	Operational Scenario	Current Capabilities	Disciplines Affected
16-05	MED	Communication device/system for secure communication between public health agencies internally or with other disciplines.	Less complex than 800Mhz but more dedicated and functional than cell phones or Blackberries. Should allow unit to unit or unit to many unit communications. Minimal training/maintenance. Useable for day to day, low cost, minimal recurring cost. Secure communication for HIPAA. Link with traditional responder communication systems. Like Nextel with direct connect functionality - P25 compliant - should operate like a phone but able to hit non-commercial government towers.	Communication system for public health in disaster.	800 MHz not used by Public Health (PH) workers - too heavy, too complex, difficult to charge. PH prefers Nextels but they have limited coverage and were abandoned. Some rely on Black-berries but they have limited function-ality and are not secure.	All public health and related public safety & hospitals.
008-05	S&T	Public safety communication systems in underground trans-portation systems	Must have assured communication in underground transportation systems. Devices must be hand portable, and have no dead spaces. Must have underground to surface/surface to underground system assured.	Managing an incident in a underground transportation system requires assured communications.	No communications ability in many areas, or line of site. Some systems have leaky co-axial or bi-directional antennas or other systems to provide communications.	All public safety.
14-05	D&D	Passive CWA portal monitor for decon verification of non-ambulatory patients.	Allow for alarm system, unmanned to expedite decon verification. Avoid technlology that alarms when exposed to common decon solutions.	Cold zone/clean side of non-ambulatory decon site. Monitor patients as they pass through, alarming at specific levels of contamination.	Ion Mobility Spectroscopy (IMS) and Mass Spectrometry.	All public safety, hospitals.
013-05	MED	Stand off casualty triage	Non-invasive (possibly IR or laser) detector capable of detecting 1) CO2 around nose/ mouth or 2) movement of the chest - to indicate respiratory attempts/function. Operative range 30-300 meters.	Mass casualty WMD incident - need equipment to determine viability of victims and a patient generator.	None.	EMS, Fire, LE
15-05	MED	Tri-corder - Scan body systems to determine illness/injury.	Hand-held, backpack, or belt-mounted; provides non-invasive body systems scan.	Mass casualty WMD incident - provide quick physical assessment of patients presenting with unknown or undeter-mined injury or illness.	MRI, echo technology, blood sugar monitors, etc.	EMS, Health
010-05	S&T	Disposable field decon towel	Small, compact, absorbent, thin, long storage life, towel able to dry a full sized adult following decon. Need to be able to transport large number of towels in small space. Must be inexpensive.	Following field decontamination, need ability to dry an adult quickly with a towel that can easily be transported in decon unit.	Most systems use normal sized, store bought household use towels that take up too much room and are inadequate for field operations.	All public safety, hospitals.

First Responder Requirements for R&D Projects (Compiled by the IAB S&T Committee, 2005) - *Continued*

Refer- ence #	Originating SubGroup	Requirement	Key Operational/Cost/ Logistical Constraints	Operational Scenario	Current Capabilities	Disciplines Affected
003-05	S&T	Tazer standards	Tazer should disable the suspect but not kill or seriously injure them. Tazers should be compatible with other less lethal devices. Option for variable voltage.	Tazers use is increasing without validation of medical/physical consequences of their use or their effectiveness. Some areas report tazer use in conjunction with pepper spray can cause a clothing fire.	Currently control length of time impulse shock is transmitted. Tazers can be deployed as darts or hand-held prong (physical contact).	LE, security, DoD
005-05	S&T	PPE standard for tactical LE operations to ensure PPE is compatible with tactical use.	Need stealth capability - particularly with SCBA. Backpacks should be compatible with body armor, face pieces should be compatible with gun sites, gloves compatible with trigger guards, etc.	Use of PPE in conjunction with LE weapons entering a clandestine lab or in WMD environment.	Current SCBA are too noisy for use in a LE tactical environment. Gloves are not compatible with triggers; facepieces make sighting guns difficult.	LE, DoD
009-05	S&T	Canine training & validation standards for canine search dogs in fields of S&R, explosives, drug, cadaver, patrol, arson	Canines should reliably detect and alert to the presence materials or persons for qualified position. Or should reliably control suspects (patrol). Need standard-ized training and validation methods for dogs and handlers.	Dogs and handlers deployed in search for people, devices or drugs need to effectively detect and alert to presence or control the objective (patrol).	Dogs and handlers are individually validated by a variety of agencies.	LE, Fire, US&R
011-05	S&T	Standard for launched less lethal projectiles.	Accurate, repeatable, durable, dependable launcher; portable device; should not be lethal.	Crowd control requiring less lethal methods. Tactical operations.	No standards available.	LE, security, DoD
012-05	S&T	Satellite telephone standard	Satellite phone should provide voice communications reliably in incidents.	Incident commanders and operational personnel need reliable telephone communication when existing systems are destroyed by a disaster.	Satellite phones are not reliable and can easily lose transmission from a variety of causes.	All public safety.
18-05	S&T	Intrinsic Safety Standard	Comprehensive standard that consolidates in a clear manner the specific requirements for intrinsic safety of first responder equipment.	First responder equipment in tunnels and enclosed areas. Military and law enforcement response in tunnels, caves, and enclosed areas. Radio and communi-cations equipment, detectors, other CBRNE equipment.	Current standard is diffuse and not clearly applicable to First Responder CBRNE equipment.	Military, Law Enforcement, First Responders

Summary of Current Research & Development by SEL Category

Requirement Number	Requirement	Project	Managing Agency / Participant(s)	Availability
SEL Category 01 - Personnel Protective Equipment				
PPE-01	Increased Respirator Protection Factors	Land Warrior project	www.natick.army.mil	FY07 and beyond
		Computer-aided face fitting	NIOSH/NPPTL	FY06
		Face fitting measurements for high APF respirators	NIOSH/NPPTL	FY06
		Nano-fiber based respirator filter media	NIOSH/NPPTL	FY07
PPE-02	Improved Flexibility of Protective Clothing	Next generation of turn-out gear for fire service/Improved Level A	www.tswg.gov	FY06
PPE-03	Decreased Heat Build-up of Protective Clothing and Self Contained Breathing Apparatus	Drink System for Powered Air Purifying respirator (PAPR) and Apparatus (SCBA)	www.tswg.gov	Technical Design Available
		Physiological models and countermeasures	NIOSH/NPPTL	FY08
PPE-04	Respiratory Protection for Persons in Downwind Hazard Area	CB Escape Hoods	www.tswg.gov, MSA	Available
		ILC Dover, Survivair		
		Low Cost Shelter In Place Equipment and Training for Public Buildings	www.tswg.gov	FY06
PPE-05	Multi-purpose canister/cartridge designs that offer appropriate levels of respiratory protection against TICs, TIMs, CWAs & airborne biological threat agents	Layered Bed Filter Canister	www.tswg.gov, www.edgewood.army.mil	Technical Design Available
PPE-06	Lightweight, low cost personal cooling capability that offers cooling capability for duration > 2 hours for use with CPC	Body Armor Cooling System	www.tswg.gov, www.technicalproductsinc.us	Available
PPE-07	Lightweight, low-cost PPE tailored for Law Enforcement	Tactical SCBA	www.technicalproductsinc.us, www.tswg.gov	FY06
PPE-08	Lightweight, low-cost PPE tailored for medical personnel in treatment facilities	DTAPS	Geomet level C DTAPS	Commercially Available
PPE-09	Improved Level "A" Chemical Protective Ensembles, Lightweight, Increased Protection	Improved Level "A" ensemble	www.tswg.gov, Inter-Spiro Gore	FY06
PPE-10	Next Generation Firefighter Bunker gear (turn-out coat, bunker pants, gloves and boots) systems that offer appropriate protection against chemical agents	Project Heroes, improved FF Bunker gear with CBR protection	www.tswg.gov, www.iaff.org/Morning Pride, NCSU/Globe	FY06
		Fully integrated, intelligent ensemble for firefighters	NIOSH/NPPTL	FY08
PPE-11	Pursue Standard Testing for All Air Respirators, APR, PAPR, SCBA	Combined SCBA/PAPR	MSA, DOD, NIOSH	Unknown
PPE-12	Pursue Standard Testing for Escape Masks	Escape Hood Testing	www.tswg.gov, www.niosh.gov/npptl	Available
PPE-13	Pursue standard testing for infant/child and respiratory impaired individuals	Escape Hood Testing	www.tswg.gov	Unknown

Summary of Current Research & Development by SEL Category - *Continued*

Requirement Number	Requirement	Project	Managing Agency / Participant(s)	Availability
SEL Category 01 - Personnel Protective Equipment - *Continued*				
PPE-14	CBRNE, Non-PASS Alert SCBA for Non-fire Agencies	Tactical SCBA	www.tswg.gov, TPI, MSA and Draeger	FY06
PPE-15	End of Service Life Indicator for Filter Canister	End of Service Life Indicator	NIOSH, Army SBIR	Ongoing
		End of Service Life Indicator for respirator cartridges	NIOSH/NPPTL	FY08
SEL Category 02 - Explosive Device Mitigation and Remediation				
EXP-01	Improved Bomb Suit with Extremity and Chemical Protection	Next Generation Bomb Suit	www.tswg.gov	FY07
EXP-02	Large Vehicle Bomb Detection	Associated Particle Imaging, Remote Detection Enhancements, NQR Detection Technologies, X-ray Based Screening System	www.tswg.gov, Quantum Magnetics	FY07
EXP-03	Suicide Bomber Detection	Terahertz Detection, Millimeter Wave Detection, Non-imaging Detection	www.tswg.gov, Qinetiq	FY07
EXP-04	Improved Handheld Explosives Detection	Next Generation Handheld Detector, NQR Personnel Screening	www.tswg.gov	FY06
EXP-05	Enhanced Canine Detector Performance	Biological Detection Platform Improvements	www.tswg.gov	FY07
EXP-06	Improved Tactical Firing Device	Timed Tactical Firing Device Upgrade to Tactical Firing Device	www.tswg.gov	FY06
EXP-07	Improved IED Response Robotics	Joint Robotics Program	www.tswg.gov	FY07
EXP-08	Improved Disruptor Performance	Standoff and Long Range Disruptors	www.tswg.gov	FY06
EXP-09	Improved Intelligence Sharing	First Responders Automated Data Tool, Technical Open Source Database	www.tswg.gov	FY06
EXP-10	Training for Security Guards and Package Screeners	Explosives Simulant Kit	www.tswg.gov, www.cbiac.apgea.army.mil	Available
SEL Category 03 - CBRNE Operations & Search & Rescue Equipment				
OSR-01	Portable Air Filtration for Small Enclosed Spaces	Modular Portable Filtration Unit for small, enclosed spaces	www.tswg.gov, www.germfree.com	Available
OSR-02	Victim Locator in Collapsed Buildings	Victim Locator Detector	www.tswg.gov	Unknown
SEL Category 04 - Information Technology				
IT-01	Centralized Security Event Auditing Tool (C-SEAT)			Unknown
IT-02	Automate Nuclear Power Reactor/Chemical (Title III) Facility Cyber Assessment			Unknown
IT-03	Railroad Bridge & Tunnel IDS System			Unknown
IT-04	Electronic Wireless Command Board		FDNY	Unknown
IT-05	Secure Knowledge & Information Exchange System	SKIES	HSARPA	Unknown

Summary of Current Research & Development by SEL Category - *Continued*

Requirement Number	Requirement	Project	Managing Agency / Participant(s)	Availability
SEL Category 04 - Information Technology - *Continued*				
IT-06	Tactical Telemetry (sensor array)	Sensor Web	www.tswg.gov, JPL	FY06
Software				
IT-07	User-friendly, Multimedia Hazard Assessment Tool	Palm-Top Emergency Action for Chemicals (PEAC-CW)	www.tswg.gov, www.aristatek.com	Available
		Chemical Risk Assessment Tool	www.tswg.gov, www.aristatek.com, Georgia Tech	FY06
IT-08	Computer models for predicting casualties following exposure to low levels of ionizing radiation, biological warfare and CWA aerosols	PEAC-CW	www.tswg.gov, www.aristatek.com	Available
		Chemical Risk Assessment Tool	www.tswg.gov, www.aristatek.com, Georgia Tech	FY06
		Urban Dispersion Modeling	www.tswg.gov	FY07
IT-09	Computer models for determining location of chemical,biological dispersal device based on limited point detection data		Los Alamos	Unknown
SEL Category 05 - Cyber Security Enhancement Equipment				
CYS-01	Physical Protection Applications for Infrastructure Cyber-terrorism			Unknown
CYS-02	Biometric User Authentication			Unknown
CYS-03	Evolving and New Anti-Virus Architectures			Unknown
CYS-04	High-Impact Open Source Cyber Securities Technologies			Unknown
CYS-05	Passive Network Mapping Tool		www.tswg.gov	Unknown
CYS-06	Detection of Novel Attacks Against Public Servers		www.tswg.gov	Unknown
CYS-07	Cyber Security Initiatives			Unknown
CYS-08	Develop Standards for Cyber Security Applications			Unknown
SEL Category 06 - Interoperable Communications Equipment				
COM-01	Improved, Interoperable Communications Systems	Small Portable Voice Radio Repeater System	www.tswg.gov	FY07
SEL Category 07 - Detection				
DET-01	Reduced Size & Cost of CBR Sample Collection Devices	Concentration and Extraction System For Air Samples	www.tswg.gov	FY06
		Biological Aerosol Detector – Collector	www.tswg.gov, LANL	FY05
DET-02	Minute Sample CBR Collection Capability	Chemical and Biological Sampling System (CBASS)	www.tswg.gov, General Dynamics	FY06
DET-03	Personal Dosimeter	Personal Nerve Agent Alarm Monitor	www.tswg.gov	Prototype evaluated; commercialization pending

Summary of Current Research & Development by SEL Category - *Continued*

Requirement Number	Requirement	Project	Managing Agency / Participant(s)	Availability
SEL Category 07 - Detection - *Continued*				
		Smart Radiation Dosimeter	www.tswg.gov, JP Labs	Available
DET-04	Pager Size Alarming Detectors (Chem/Bio/Rad)	Radiation Pager with Integrated Dosimetry, GPS, and 2-Way Communication	www.tswg.gov, SMI	FY06
DET-05	Stand-off Detectors	Active LWIR for Facility Monitoring	www.tswg.gov	FY06
DET-07	Broad Spectrum Agent Detection	Biological Aerosol Threat Warning Detector	www.tswg.gov, GE Global Research	FY06
		Facility Airborne Biological Toxin Alarm System	www.tswg.gov, www.draper.com	FY06
		PCR-Less Detection of Bio Agents	www.tswg.gov, www.nanosphere-inc.com	FY06
		Biological Aerosol Mass Spec (BAMS)	www.tswg.gov, LLNL	FY07
		SmallCAD	www.tswg.gov, www.saic.com	Available
		Detection of Toxic Adulterants in Food	www.tswg.gov	FY07
DET-09	Non-intrusive Agent Detection	Smart Radiation Dosimeter	www.tswg.gov, JP Labs	Available
		Real Time Radioisotope Detection and Reporting	www.tswg.gov, www.saic.com	FY06
DET-10	Syndromic Surveillance	Biodosimetry Assessment Tool	www.tswg.gov, AFFRI	Available
DET-11	Non-intrusive, Remote Explosives Detection			Unknown
DET-13	Wide Area Metal Detection (WAMD)			Unknown
DET-14	Building/Area CBR Detection and Alarm System	Facility Toxic Industrial Chemical Monitor	www.tswg.gov, Avir	FY06
		Distributed Chemical Sensing and Transmission	www.tswg.gov, IOS	Prototype Field Demo in FY06/07
DET-15	Water System CBR Threat Assessment, Detection and Response	Water-borne Pathogen Detection	www.tswg.gov, EPA	FY06/FY07
		Alpha and Beta Detection in Water	www.tswg.gov, EPA	FY06/FY07
SEL Category 08 - Decontamination				
DEC-01	Mass, Gross Decontamination Protocols	Mass Personnel Decontamination Protocols	www.tswg.gov, www.cbiac.apgea.army.mil	Available
DEC-02	Equipment/Surface Decontamination Methods and Materials	Enzymatic decontamination	www.sbccom.army.mil	Unknown
		Ultraviolet light for biological materials		
		High Pressure Steam		
		Supercritical steam		
		Disinfection By-products Database	www.tswg.gov AVAIL, www.utexas.edu	

Summary of Current Research & Development by SEL Category - *Continued*

Requirement Number	Requirement	Project	Managing Agency / Participant(s)	Availability
SEL Category 08 - Decontamination - *Continued*				
		Electrostatic Decontamination System	www.tswg.gov AVAIL, www.cleanearthtech.com	
DEC-03	Personnel Decontamination Methods and Materials	Low Cost Personnel Decontamination System	Army's Edgewood Arsenal, www.tswg.gov, LLNL	FY06
DEC-04	Decontamination of High-value and Difficult to Replace Equipment	Atmospheric Plasma Decontamination	www.tswg.gov, Atmospheric Glow Tech	Available
DEC-06	Mass Personnel Decontamination with High Velocity throughput, even in Cold Weather Environments			Unknown
DEC-07	Low Cost Liquid Contamination Containment Vessels	WMD Overpack Bag	www.tswg.gov, www.ilcdover.com	Available
DEC-08	Radiological Decontamination Methods and Materials	Expedient Mitigation of a Radiological Release	www.tswg.gov, Isotron Argonne National Lab DHS (S&T)	FY06
DEC-09	High temperature, high volume, portable incinerators for chemically, and biologically infected animal and contaminated material cremation	Plant and Animal Tissue Gasifier	www.tswg.gov, EPA, USDA	Unknown
DEC-10	Sensor Technology for Decon Assurance	Sensor Web	www.tswg.gov, JPL	FY06
DEC-11	Decon Standards			Unknown
DEC-12	Chem/Bio Mitigation Where Evacuation is Not an Option	Expedient Chemical/ Biological Release mitigation	www.tswg.gov, www.battelle.org	Prototypes Available
SEL Category 09 - Medical				
MED-01	Syndromic Surveillance (also Covered in Detection)	Bio-dosimetry assessment Tool (BAT) Integration	www.tswg.gov, AFRRI	Available
MED-02	EMT Tools for Rapid Diagnosis of Chemical Agent Exposure	Ocular Scanner for Chem/ Bio Agents	www.tswg.gov, MD Biotech	FY06/FY07
SEL Category 10 - Power				
POW-01	Reduce Power Requirements and Battery Weight to Improve Systems Size/Weight			Unknown
CBRNE Training Technologies				
TR-01	Crowd Control at WMD Incidents	WMD Panic Response Operations (WMD-PRO) Course	www.tswg.gov	Available
TR-02	Protection of Food Supply Chain at National Security Events	Food Protection and Security Training for Critical and Overseas Facilities	www.tswg.gov, www.cfsan.fda.gov	Preliminary Course materials Available
TR-03	Agricultural Bioterrorism Response Training	Agricultural Bioterrorism Response Training	www.tswg.gov, www.aphis.usda.gov	Preliminary Course materials available mid-FY05
Miscellaneous				
MS-01	CB Building Protection Protocols	CB Building Protection Protocols	www.tswg.gov, www.utrc.utc.com, US Army Corps of Engineers	Available

Summary of Current Research & Development by SEL Category - *Continued*

Requirement Number	Requirement	Project	Managing Agency / Participant(s)	Availability
Miscellaneous - *Continued*				
MS-02	Absorptive & regenerative air filtration for public facility HVAC systems	Nano-material and nanotechnology research and development Advanced Gel Based Air Filters	www.raytheon.com, www.dupont.com, www.cimit.org, www.tswg.gov, www.ecolab.com	FY06
MS-03	Standards Coordinating Committee pursue standards for chemical, biological and radiological detection equipment			Unknown

S&T Chairs

Vincent J. Doherty
Executive Officer of HazMat Operations
Fire Department, City of New York

Vincent Doherty, a 25-year veteran of the Fire Department of New York, is presently Executive Officer of HazMat Operations. He is a former Company Commander of Hazardous Materials Company 1 (HazMat 1), New York City's premier hazardous materials response. Captain Doherty has a B.S. in pharmacy from St. John's University and an M.A. in security studies, homeland security and defense from the Naval Postgraduate School. Prior to joining the Fire Service, he was a research/quality control chemist in the Diagnostics Division for Fisher Scientific, Orangeburg, N.Y. Captain Doherty is a contract instructor for the International Association of Fire Fighters, National Fire Academy, and FDNY and is currently Chair of the Science and Technology Committee of the IAB. He is also a member of New York City's Federal Emergency Management Agency Urban Search and Rescue Task Force 1.

Gabriel Ramos
Chemical Biological Program Manager
Technical Support Working Group

Gabriel Ramos is a program manager for the Technical Support Working Group, providing management and technical oversight for the execution of the chemical, biological, radiological, and nuclear countermeasures rapid research and development program. He has 20 years of experience developing and evaluating chemical/biological capabilities for the U.S. Department of Defense and the federal interagency combating terrorism community. Mr. Ramos has a B.S. in chemical engineering from the Polytechnic University, Brooklyn, N.Y. and is also a graduate of the U.S. Army School of Engineering Logistics Product/Production Engineering Program.

Mission

To address the issues of personal protective and operational equipment standardization and interoperability and make recommendations for PPE and Operational Equipment based upon threat assessment, operational requirements, and job functions.

Role and Functions

The Personal Protective and Operational Equipment (PP&OE) SubGroup addresses the personal protection and operational equipment needs of responders to potential CBRNE events. The SubGroup recommends personal protective ensembles based upon both the hazard to be encountered (weapon type and, where applicable, physical state) as well as the job function likely to be performed. As the ensembles and the necessary accessories or ancillary items necessary to meet this "hazard/risk" assessment are identified, the SubGroup then looks to identify where necessary performance standards either exist or are lacking. The PP&OE SubGroup is actively involved with or supports the development of personal protective and operational equipment performance criteria and standards. In addition to personal protective equipment, the SubGroup has the responsibility for explosive device mitigation and remediation as well as operational and search and rescue equipment.

The PP&OE SubGroup comprises SMEs from a wide array of emergency response organizations of varying size, as well as federal partners and standards organizations. The synergistic effect of this membership creates the ability to push forward initiatives that will provide systemwide improvements and standards development. In addition to responders, many members of the PP&OE SubGroup are also members of the IAB SCC, NIST, NFPA, and various committees of ASTM International. These dual memberships serve to enhance partnerships between local, state, federal, military, and professional organizations and the standards development community. Through these partnerships, protective clothing, equipment, expertise, technologies, and standards are being developed. Ongoing federal and military research and development programs are being leveraged and, in some cases, fast-tracked for the benefit of the emergency response and public safety community. This dynamic of bringing all the "players" to the table in a cooperative manner has been and will continue to be essential to the success of this SubGroup. The following figure portrays the areas of responsibility for the PP&OE SubGroup:

Personal Protective & Operational Equipment (PP&OE) SubGroup

CO-CHAIR

Douglas Wolfe
Sarasota County (FL) Fire Department

FEDERAL CO-CHAIR

Philip Mattson
National Institute of Standards and Technology,
Office of Law Enforcement Standards

Membership

Armando Bevelacqua
Orlando (FL) Fire Department

Richard Duffy
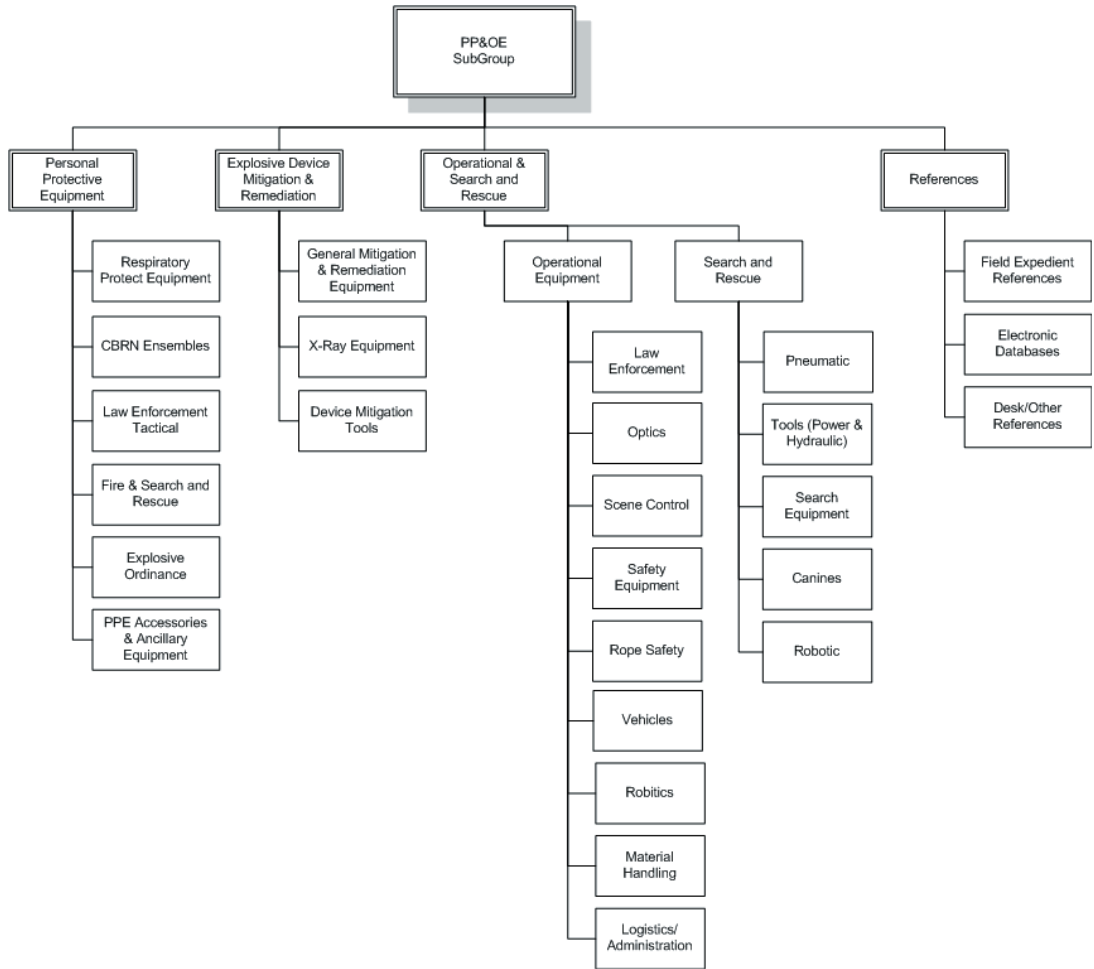*International Association of Fire Fighters*

John Hancock
Department of Veterans Affairs

James Hanzalik
United States Coast Guard, National Strike Force

William Haskell
National Institute for Occupational Safety and Health,
National Personal Protective Technology Laboratory

Martin Hutchings
Sacramento County (CA) Sheriff

Eric Imhof
Contra Costa County (CA) Office of the Sheriff

PP&OE SubGroup Organization Chart

PP&OE SubGroup

- **Personal Protective Equipment**
  - Respiratory Protect Equipment
  - CBRN Ensembles
  - Law Enforcement Tactical
  - Fire & Search and Rescue
  - Explosive Ordinance
  - PPE Accessories & Ancillary Equipment

- **Explosive Device Mitigation & Remediation**
  - General Mitigation & Remediation Equipment
  - X-Ray Equipment
  - Device Mitigation Tools

- **Operational & Search and Rescue**
  - **Operational Equipment**
    - Law Enforcement
    - Optics
    - Scene Control
    - Safety Equipment
    - Rope Safety
    - Vehicles
    - Robitics
    - Material Handling
    - Logistics/Administration
  - **Search and Rescue**
    - Pneumatic
    - Tools (Power & Hydraulic)
    - Search Equipment
    - Canines
    - Robotic

- **References**
  - Field Expedient References
  - Electronic Databases
  - Desk/Other References

Glenn Jirka
Miami Township (OH) Fire Protection Division

Joel Leson
International Association of Chiefs of Police

Jeffrey Marcus
Los Angeles City (CA) Fire Department

W. Ronald Olin
Lawrence (KS) Police Department

Richard Reddy
Boise (ID) Fire Department

Irene Richardson
United States Army Center for Health Promotion and Preventive Medicine

Mark Saxelby
California Task Force 1, Urban Search & Rescue Team

Bruce Teele
National Fire Protection Association

Ronald Watson
Los Angeles (CA) Fire Department

Wayne Yoder
Department of Homeland Security, Federal Emergency Management Agency

Subject Matter Experts

Les Boord
National Institute for Occupational Safety and Health, National Personal Protective Technology Laboratory

Jeffrey Stull
International Personnel Protection

Initiatives and Progress

During its June 2005 meeting, the PP&OE SubGroup identified its major strategic initiatives:

- Obtain input from responders and users concerning equipment performance and capabilities needs.

- Look at standards to provide input to SDOs through the SCC to drive the development of new standards and technology by both SDOs and manufacturers.

- Communicate the recommendations of the PP&OE SubGroup through the IAB's SEL and RKB.

- Get information directly into the hands of the end buyer and user.

- Promote the development of new or emerging capabilities and innovations.

One of the hardest issues to come to grips with during the previous year was identifying a means by which commonly accepted terminology can coexist with performance-based PPE standards. In other words, how can the general descriptive terms "Level A, B, and C protective garments" be reconciled with specific performance standards NFPA 1991, 1992, and 1994 Classes I, II, and III? The fact is that there is no simple crosswalk of the terms to the standards. As a result, the PP&OE SubGroup, and subsequently the IAB as a whole, endorsed and supported a cooperative effort of OSHA, EPA, NIOSH, NIST, and NFPA to develop a single classification system for CBRN protective clothing. This is still an ongoing issue.

A document was developed through the efforts of members of the IAB PP&OE SubGroup and coordinated and approved by NFPA, IAFF, and other organizations to provide the first-ever cross-reference between NFPA standards and the OSHA A, B, and C Levels of protection. This document was completed in December 2004 and was incorporated in FY 2005 DHS grant guidance. A copy of this guidance has also been provided in Section 1 of the SEL (page 82). This issue continues, as the NFPA 1994 standard is being revised with different classes of protection being established than in the previous edition. The revised NFPA 1994 standard has not been released as of this writing, so the previous version of the letter still stands. When the 2006 edition of NFPA 1994 is released, this document will be updated.

Another major outcome this year is the result of a DHS-funded research effort conducted at NIST in conjunction with the NIOSH Fire Fighter Fatality Investigation and Prevention Program. The NIST Building Fire Research Laboratory conducted a series of thermal exposure tests of Personal Alert Safety System (PASS) devices and determined that PASS alarms may fail at high temperatures. The NFPA issued the following announcement:

PASS alarm signals can fail at high temperatures

Exposure to high-temperature environments may cause the loudness of PASS alarm signals to be reduced. This reduction in loudness could cause the alarm signal to become indistinguishable from background noise at the incident scene. This problem was brought to the attention of the NFPA Technical Committee on Electronic Safety Equipment by the National Institute for Occupational Safety and Health's (NIOSH) Fire Fighter Fatality Investigation and Prevention Program.

NIOSH reported that during the investigation of four fire fighter fatalities that occurred from 2001 to 2004, the PASS alarms were not heard or were barely audible. The PASS had been certified as compliant to NFPA 1982, Standard on Personal Alert Safety Systems (PASS), 1998 Edition, and involved both stand-alone PASS and SCBA-integrated PASS.

Initial laboratory testing of PASS by the National Institute for Standards and Technology's (NIST)

Fire Research Division has shown this sound reduction may begin to occur at temperatures as low as 300°F (150°C) and could affect all PASS. Additional work is required to better characterize the thermal conditions (temperatures and exposure durations) that contribute to alarm signal degradation.

While the NFPA Technical Committee on Electronic Safety Equipment has been working to develop appropriate revisions to NFPA 1982 to address this issue, adequate solutions have not yet been presented. The Committee, in cooperation with NIOSH and NIST, will continue to study the issue and will incorporate revisions into NFPA 1982 as solutions are developed and consensus around addressing the issue is achieved.

PASS has always been a "last resort call for help" for emergency services personnel who are unable to otherwise notify others that they are in distress. Fire fighters should continue to activate and wear PASS whenever in hazardous areas of any incident, but should also be aware that high temperatures could cause degradation of the alarm signal. Incident command should continue to apply all personnel accountability measures at all incidents to assure the safe entrance and exit of personnel from hazardous areas. Direct supervision of operating companies or teams should provide for the safe operating locations of personnel and ensure that members do not "freelance" on the incident scene.

Emergency services organizations and emergency response personnel should report any PASS malfunctions and other problems with PASS functioning directly to both the certification organization whose certification mark appears on the PASS, and to NIOSH-NPPTL. Be sure to give your contact information so they can respond to you.

- SEI, the Safety Equipment Institute (certification organization), can be reached by e-mail (info@seinet.org).

- NIOSH-NPPTL, the National Institute for Occupational Safety and Health National Personal Protection Technical Laboratory can be reached by e-mail (npptl_pass@cdc.gov).

During 2005, the PP&OE SubGroup held three meeting in conjunction with the IAB. The major issues and initiatives raised during these meetings are summarized as follows:

San Francisco, California, February–March 2005

- Encouraged a discussion concerning the development of interoperability of SCBA cylinders. While not wishing to stifle innovation, the SubGroup felt that is was important to seek standards to enable the long-term goal of interoperable SCBA cylinders.

- Realigned mission objective listing (job function) for the PPE matrix. The "CERT" team member was eliminated because it was felt that the member would be assigned a role within one of the other functions. In addition, job functions related to medical responders were redefined to allow a better alignment with Centers for Disease Control and Prevention/NIOSH guidance documents.

- Approved 11 standards for adoption by the IAB.

- Revised SEL line items as necessary.

Reno, Nevada, June 2005

- Reviewed membership to ensure alignment with Homeland Security Presidential Directive (HSPD) 8, as applicable.

- Requested two additional member seats.

- Developed a standards submission process worksheet for submission to entire IAB membership.

- Identified areas of standards "gaps" to include canine (explosives and search) and explosive device

mitigation equipment (disrupters and containment systems).

- Identified the lack of unified standards for standoff distances for explosives and recommended this as a need for immediate attention.

- Obtained briefings on the Domestic Nuclear Detection Office.

- Attended various ASTM committee meetings to provide input and to better identify the direction that ASTM is taking with regards to domestic preparedness issues.

Orlando, Florida, October 2005

- Reelected State and Local Co-Chair for a two-year term.

- Received an update on the current status of NFPA 1994 and 1971 standards.

- Received a briefing concerning the status of NFPA 1981 Self-Contained Breathing Apparatus.

- Created maritime equipment categories within both the PPE and OE list areas. This will include both above surface and subsurface operations. Working to develop a equipment focus group for a separate work session.

- Developed a standards "key word" list for use by ANSI to assist with review of up to 6500 potential standards.

- Identified personal protective "cooling garments" as an existing standards gap.

- Made significant revisions and realignments of the SEL.

- Pushed for the final adoption of 11 standards.

PP&OE SubGroup Adopted Standards

The following table summarizes the PP&OE-related standards currently adopted by the IAB. The NFPA 1991 and 1992 standards had been previously adopted by the IAB. New editions of these standards were released in 2005; the new editions remain endorsed by the IAB.

American National Standards Institute Standards

ANSI Z87.1 – Occupation and Education Personal Eye and Face Protection Devices	2005
ANSI Z89.1 – Protective Headwear for Industrial Workers	2003
ANSI/ISEA 105 – American National Standard for Hand Protection Selection Criteria	2003
ANSI/ISEA 107 – American National Standard for High-Visibility Safety Apparel	2003
NSF/ANSI 5-2000 – Water Heater, Hot Water Support Boiler	2004

National Fire Protection Association Standards

NFPA 1851 – Standard on SCaM of Structural Firefighter Protective Clothing	2005
NFPA 1852 – Standard on SCaM of Open-Circuit Self-Contained Breathing Apparatus	2005
NFPA 1936 – Standard on Powered Rescue Tool Systems (2005 edition)	2003
NFPA 1951 – Protective Ensemble for Urban Search and Rescue Operations (2001 Edition)	2002
NFPA 1971 – Standard on Protective Ensemble for Structural Fire Fighting (2000 edition)	2003
NFPA 1975 – Station/Work Uniforms for Fire and Emergency Services (2004 edition)	2003
NFPA 1976 – Standard on Protective Ensemble for Proximity Fire Fighting (2000 edition)	2003
NFPA 1981 – Open-Circuit Self-Contained Breathing Apparatus for Fire and Emergency Services (2002 edition)	2002
NFPA 1982 – Standard on Personal Alert Safety Systems (PASS) (1998 edition)	2003
NFPA 1983 – Standard for Fire Service Life Safety Rope and System Components (2001 edition)	2003

NFPA 1991 – Vapor-Protective Ensemble for Hazardous Materials Emergencies (2005 edition)	2002
NFPA 1992 – Standard on Liquid Splash–Protective Ensembles and Clothing for Hazardous Materials Emergencies (2005 edition)	2003
NFPA 1994 – Protective Ensemble for Chemical/Biological Terrorism Incidents (2001 edition)	2002
NFPA 1999 – Protective Clothing for Emergency Medical Operations (2003 edition)	2002
NFPA 2112 – Standard on Flame-Resistant Garments for Protection of Industrial Personnel Against Flash Fire (2001 edition)	2003
NFPA 2113 – Standard on SCaM of Flame-Resistant Garments for Protection of Industrial Personnel Against Flash Fire	2005

National Institute for Occupational Safety and Health Standards

NIOSH CBRN Standard for Open-Circuit Self-Contained Breathing Apparatus (December 2001)	2002
NIOSH Standard for CBRN Full-Facepiece Air-Purifying Respirator (APR) (April 2003)	2003
NIOSH Standard for CBRN Air-Purifying Escape Respirator (October 2003)	2003
NIOSH Standard for CBRN Self-Contained Escape Respirator (October 2003)	2003

National Institute of Justice Standards

NIJ 101.04 – Ballistic Resistance of Personal Body Armor (September 2000 edition)	2003
NIJ 100-01 – Selection and Application Guide to Personal Body Armor (replaces NIJ 100-98)	2005

Underwriters Laboratory Standards

UL 913 – Intrinsically Safe Apparatus and Associated Apparatus for Use in Class I, II, and III, Division 1, Hazardous (Classified) Locations	2003

First Responder CBRNE Protective and Operational Equipment Standards Development Program

NIST/OLES has been managing a program to develop a suite of performance standards for emergency response and public safety community since 1999. OLES also serves as the Secretariat for the IAB Standards Coordination Committee. A team was established between NIST, NIOSH, ECBC, and the U.S. Army National Protection Center (NPC) to develop these standards in coordination with various standards development organizations. Initially funded by NIJ, this program was transferred to G&T in FY 2003 and to the DHS S&T Directorate Standards Portfolio in 2004. The NIOSH/NPPTL CBRN respiratory protection standards were developed through this program. The major tasks that are currently being funded by DHS S&T in FY 2005 that pertain directly to the PP&OE SubGroup are as follows:

- *Development of Respirator Standards for Chemical, Biological, and Radiological Agents.* The PAPR standard is currently under development. Simulants for chemical warfare agents that allow respirator manufacturers to evaluate the performance of nonpermeable materials are also being developed. It is anticipated that the PAPR standard will be released in 2006.

- *Development of Verification Method for Gas Mask Fit Test.* This effort, to develop calibration methods and supporting standards for quantitative fit testing of respiratory protection, is being conducted at NIST.

- *Development of PPE and Membrane Technology Standards for Chemical and Biological Agents.* The percutaneous hazards of toxic industrial chemicals/toxic industrial materials are being examined and quantified as part of this program. This effort is being conducted at ECBC and NPC. The results of this program are being incorporated into NFPA standards development where applicable.

- *Development of a Bomb Suit Standard.* This project is jointly funded by DHS and NIJ, and the work is being conducted at NPC. The standard will be promulgated by NIJ.

- *Development of Urban Search and Rescue (USAR) Robot Standards.* This project, being conducted

at NIST, is developing performance standards and metrics for USAR robots. Standards will be promulgated by ASTM.

NIJ is funding the following major tasks that relate to PP&OE. These projects are being managed by OLES, and the work is being conducted at NIST:

- Development of performance standards and metrics for bomb-disposal robots. This effort will result in an NIJ standard.
- Studies on the performance of ballistic body armor to update the body armor standard.
- Revision of the NIJ standard for ballistic helmets.

OLES is supporting the development of human/machine interface standards and metrics for USAR and bomb-disposal robots.

OLES has been using the recommendations and priorities developed by the IAB as critical components of the justification for funding requests from NIJ and DHS. The multiyear program plan managed by OLES to develop the full suite of first-responder CBRNE protective and operational equipment has successfully transitioned from NIJ sponsorship to G&T and then to DHS S&T. Not only has the program remained intact, but it has been significantly expanded in the past two years. The program expansion and new tasks, particularly in the operational equipment area, reflect the new IAB priorities identified in this report. This linkage of IAB priorities and requirements is continuing in the 2006 programs being funded by DHS, NIJ, and OLES and managed by OLES.

Standards Gaps Identified by the PP&OE SubGroup

The PP&OE SubGroup has identified the need for improved standards efforts in the following areas:
- Standards for law enforcement personal protective equipment and technology suitable for tactical operations.
- Canine standards for both the explosive and search missions.
- Standards for explosive device mitigation equipment, such as disrupters and containment systems.
- Identification of standards relating to maritime response equipment in both the above-surface and subsurface missions.

Future Initiatives

In 2006, the PP&OE SubGroup will be working to fill the gaps identified in both standards and listed equipment. A major emphasis will be placed upon maritime responder equipment needs. It is anticipated that this equipment area will become another significant section of the PP&OE SubGroup responsibility.

As we move forward, it is desired to reach out more aggressively to communicate our role to the end user of our areas of SEL responsibility, both to educate users in the role of the SEL and to seek their input for strengthening the SEL.

PP&OE Chairs

Douglas E. Wolfe
Captain, Special Operations Coordinator
Sarasota County Fire Department

Douglas Wolfe is the Special Operations Coordinator for Sarasota County (Florida) Fire Department and has served with the IAB PP&OE SubGroup since 1999. He has spent 23 years in the Fire Service, including 16 years in hazardous materials emergency response. Captain Wolfe is an adjunct faculty member for the National Fire Academy (NFA) and has coauthored numerous hazardous materials and terrorism response training programs for the NFA, the FBI National Academy, the National Aeronautics and Space Administration, and numerous other state and federal organizations. He is the Florida Professional Fire Fighters' nominee to the Florida State Emergency Response Commission and serves on the Florida State Working Group for Domestic Security.

Philip J. Mattson
Program Manager, Critical Incident Technologies
Office of Law Enforcement Standards
National Institute of Standards and Technology

Philip Mattson is Program Manager for Critical Incident Technologies at the Office of Law Enforcement Standards at the National Institute of Standards and Technology (NIST), where he also serves as Vice Chair of the NIST Homeland Security Strategic Working Group. He is also serving on a temporary detail to the Department of Homeland Security (DHS) with the Standards Portfolio at the Science and Technology Directorate. Mr. Mattson manages programs with multiagency funding to facilitate the development of a national suite of standards for chemical, biological, radiological, nuclear and explosives protective and operational equipment for the emergency response community. He is the Federal Co-Chair of the Personal Protective and Operational Equipment SubGroup of the IAB, a member of the ASTM E54 Committee on Homeland Security Applications (Chair, E54.08 Operational Equipment Subcommittee) and the ANSI Homeland Security Standards Panel, and participates on the National Fire Protection Association technical committee for protective equipment. At DHS Mr. Mattson serves as the Thrust Area Coordinator for the Emergency Preparedness and Response portfolio of projects, which includes the DHS-funded protective equipment standards development efforts. A registered Professional Engineer, he received a B.S. in nuclear engineering technology from Oregon State University, an M.S. in physics from the Naval Postgraduate School, and extensive training in nuclear weapons and radiological incident management. Mr. Mattson served 20 years as an officer with the U.S. Army Corps of Engineers and as a nuclear physicist with the Defense Nuclear Agency and Defense Special Weapons Agency.

Mission

The mission of the Interoperable Communications and Information Systems (ICIS) SubGroup is to identify and make recommendations on a model suite of practices, capabilities, applications, and equipment which provide for secure and assured communication and information systems.

Role and Functions

The quick, efficient, and beneficial exchange of information, whether voice or data, continues to be listed among the top problems in after-action reports for major incidents and drills throughout the nation. "Interoperability" and "interoperable communications" have become some of the most-used buzzwords in the realm of emergency response on all levels.

The ICIS SubGroup recognizes that there are groups as large as the entire IAB, and certainly some with more funding, that are working solely on the issue of interoperability. Some of these groups are tasked with developing long-term solutions, some with developing wide-reaching solutions, and others combinations thereof. The role of the ICIS SubGroup is unique in a few regards.

We seek to provide a direct two-way link between the first-responder community and our federal partners. We try to relay immediate or short-term communications needs from the community to the federal partners by placing them in direct touch with the first responders themselves. It is not our intent to circumvent representative agencies; in fact, many IAB members also participate in representative organizations (e.g. International Association of Fire Fighters, International Association of Fire Chiefs, International Association of Chiefs of Police, Association of Public Safety Communications Officials International, etc.). But a strength of the ICIS SubGroup and the IAB as a whole has been that we continue to insist that our state and local representatives remain active in the response community. This relationship also serves to confirm to the federal partners those needs being expressed by representative agencies.

At the same time, the SubGroup acts as a conduit to disseminate information from the federal level down. Information regarding grant programs, technology trends, resources, ongoing research and

Interoperable Communications & Information Systems (ICIS) SubGroup

CO-CHAIR

Christopher Lombard
Seattle (WA) Fire Department

FEDERAL CO-CHAIR

William Snelson
United States Marshals Service

Membership

Joseph Booth
Louisiana State Police (alternate Co-Chair)

David DeRieux
United States Naval Research Laboratory

Amy Donahue
University of Connecticut

Mark Hogan
Oklahoma, Region 7, Terrorism Early Warning Group

Harlin McEwen
International Association of Chiefs of Police

Susan McGrath
Dartmouth College

J. Robert McKee
Texas Engineering Extension Service

development, etc. is quickly shared with responders around the nation. Again, the intent is not to circumvent, but to provide another means to get information out to those who otherwise may not receive it.

The ICIS SubGroup has delegated representatives from various public safety communities to advise and support initiatives such as SAFECOM (www.safecom.com) and SAVER (www.saver.com) and agencies such as DHS, G&T, NIJ, DOJ, DoD. Through these and other means, the SubGroup has been able to provide input and feedback on communications-related issues and policy.

Accomplishments

As mentioned above, some of the ICIS SubGroup's primary accomplishments have been the referral and placement of knowledgeable public safety experts on groups that are starting to make significant progress in communications-related endeavors.

Two ICIS members are currently active within the SAFECOM advisory group, a communications program within DHS's Office for Interoperability and Compatibility that provides RDT&E guidance and assistance for local, tribal, state, and federal public safety agencies working to improve public safety response through more effective and efficient interoperable wireless communications.

Another ICIS member is active with the Project 25 (P25) steering committee. Recognizing the need for common standards for first responders and homeland security/emergency response professionals, representatives from the Association of Public Safety Communications Officials International (APCO), the National Association of State Telecommunications Directors, selected federal agencies, and the National Communications System established the P25 steering committee for selecting voluntary common system standards for digital public safety radio communications. (See the end of this section for additional information and an update regarding P25.)

Several ICIS members are active in the G&T's Terrorism Early Warning (TEW) Group ventures. The TEWs are created to form groups capable of a highly coordinated and focused response to acts of terrorism, based on careful assessment of information and intelligence and detailed planning. Cooperating agencies usually include local, state, and federal law enforcement, emergency management, fire

Jeffrey Rodrigues
City of Chicago (IL), Office of Emergency Management and Communications

John Sullivan
Los Angeles County (CA) Sheriff's Department

Subject Matter Experts

Matthew Devost
Terrorism Research Center

Don Hewitt
Responder Knowledge Base

Walter Kaplan
Disaster Management Interoperability Services

David Martin
Missouri State Highway Patrol

Dereck Orr
National Institute of Standards and Technology, Office of Law Enforcement Standards

departments, transportation authorities, universities, airports, and criminal justice agencies.

Also, several SubGroup members played significant roles in the responses to both hurricanes Katrina and Rita. Their response activities included the coordination of requesting communications resources/assets from assorted federal agencies, ensuring those resources were delivered into the hands of those who needed and would be able to use them, and assisting with the coordination of communications among all parties involved.

The ICIS SubGroup continues to screen the communications- and information technology–related portions of the RKB and the SEL and to work with G&T on the AEL.

It is perhaps in this last role of "go-between" (among G&T's grant guidance section, the first-responder community, and the larger communications interoperability groups—SAFECOM, et al.) that we have seen some of our greatest successes. As with most of the IAB SubGroups, the conditional linking of federal grants to standardized equipment and lists has accelerated interoperability throughout the many disciplines within public safety's response to incidents.

At this writing, the ICIS SubGroup is in the final stages of putting together a cyber security seminar with Dartmouth College's Institute for Security Technology Studies. The two-day seminar, bringing together public industry, academia, public safety first responders, and assorted federal agencies, will begin with an overview of the current status of cyber security-related trends, research, development, solutions, etc. The second day of the seminar will include formulation of a series of recommendations and best practices for first responders to take back to their communities. Anticipated recommendations include identification of areas of vulnerabilities, suggested policy/policy-change considerations and additions, and possibly a test of the effectiveness of those recommendations.

Current ICIS Priorities

As the definition of those who are being called "first responders" grows (fire, police, EMS, military, etc.), so too are their specific needs in interoperable communications, information systems, the related equipment, associated philosophies, etc. Before, during, and after any appreciable incident, the communications needs invariably change in form, magnitude, and content. Individuals and agencies come and go, their roles may wax and wane or change suddenly, and the very structure and content of the communications needs/infrastructure often change. To that end, the ICIS SubGroup has attempted to establish focus groups that are able to report back to the whole SubGroup. The approximate divisions include Command/Control/Intelligence/Surveillance/Reconnaissance (C2ISR), communications, cyber security, and information technology. While all SubGroup members contribute to all of the focus areas, the members use their own experiences, respective agencies, and educational backgrounds in their division(s) of choice.

The standards-making progress is complex and time-consuming. We continue to work on the following:

- Development of cyber security requirements to protect information systems and the technology required to support terrorism response capabilities at all phases of operations (before, during, and after incident)

- Development of standards for geospatial intelligence, including visualization and the need for geospatial standards

  – Mapping tools, GIS, symbology, integrating geospatial tools with data-mining results

  – Modeling standards (especially for fate and transport—plume models, etc.)

- Information/data fusion (including geospatial, data mining, production, dissemination, and distribution)

    – Need for interoperability and a concept of operations (CONOPS) for use of software agents and development of secure portals/data exchange

    – Need to integrate cyber security/surety into all tools

- Adaptive bandwidth management

- Virtual reachback (for data, voice, video, multimedia, etc.) and tactical telemetry (sensor arrays)

Future Trends/Priorities

The ICIS SubGroup has been working with the S&T SubGroup and their partners (Technical Support Working Group, national laboratories, etc.) to explore the development of dual-channel/intercom-style portable radios. Our respective user communities have stated they could all benefit from a hands-free, voice-activated, portable radio that operates as an intercom for a small working group in close range to each other. The expectation is that the few members in the group would hear each other at all times, while also being able to hear another frequency/channel (Fire Ground Tactical Channel, Fire Ground Command Channel, etc.). Users would have the option to then talk on the alternative frequency/channel by keying their portable radio microphone.

Updated Status of Project 25 Standard Development
November 9, 2005

Standards development activities for the public safety community's new-generation digital land mobile radio systems are being performed as a joint effort of public safety users and equipment manufacturers. The users are represented by local, state, and federal government public safety organizations and agencies, and manufacturers are represented by industry members of the Telecommunications Industry Association (TIA). The entire standards development process has been identified as "Project 25." Essentially, Project 25 members establish user requirements and draft specifications based on the users' perspective, and TIA (and its TR-8 Committee) uses processes accredited by ANSI to develop formal, nationally recognized standards that can be used to design and manufacture equipment and evaluate its performance.

A suite of standards is necessary to completely define and specify each of the eight interfaces that functionally describe a Project 25 system. An "overview" or "definition" document is developed first that outlines what standardization needs to be done for a particular interface. A "protocol" standard is created next. It is the most significant of the standards in the suite, as it specifies in great detail exactly what must happen at the interface, such as the types, structures, and meanings of messages that cross the interface. Performance and testing standards follow and include "conformance," "performance," "interoperability," and "measurement method" documents that specify how to test the interface, what values should be evident under certain conditions, etc. The basic suite of Project 25 interface standards, then, includes several documents—eight overview documents, and eight sets of protocol standards and performance and testing documents. Beyond the basic suite, there may be a need for additional standards, for example, standards that specify an overarching system function, like encryption, or that describe in great detail a critical element of the functional design, like the voice coder. While these additional standards are as important as those in the basic suite, for brevity the discussion here is limited to the "basic" documents.

It is important to note that the documents that provide Project 25 standardization (and for that matter, most telecommunication standards) are not "set in stone" once they are approved. Events occur that dictate a review and perhaps a revision to existing approved standards. For example, errors in standards are sometimes detected, user requirements change, and technologies advance over time, etc. Therefore,

status reports may indicate that an interface has been completely standardized, but some activity may be (and should be) continuing to address emerging issues.

In the summary that follows, the status of each interface is presented:

- Common Air Interface (CAI)—Overview and all standards approved.

- Subscriber Data Peripheral Interface (SDPI)—Overview and protocol standard approved. The performance and testing standards are not completed.

- Inter-RF Subsystem Interface (ISSI)—Overview approved. At the October 2005 TIA TR-8 meeting, it was agreed to conduct letter balloting by TIA of the draft TIA protocol standard at the next TIA TR-8 meeting (January 2006). The performance and testing standards are not completed.

- Fixed Station Subsystem Interface (FSSI)—Overview approved. A new P25 protocol standard for the FSSI was approved by the P25 Steering Committee at its October 2005 meeting; the corresponding draft TIA protocol standard is planned for letter balloting on November 18, 2005. The performance and testing standards are not completed.

- Console Subsystem Interface (CSSI)—At the October 2005 TIA TR-8/P25 meetings, it was agreed to defer standardization of the CSSI until standards that can be directly applied for standardization of the CSSI (i.e., ISSI and FSSI) are technically completed. A proposed new TIA Telecommunications Systems Bulletin (TSB) providing an overview of the CSSI is planned for letter balloting in January 2006. The protocol standard and the performance and testing standards are not completed.

- Telephone Interconnect Interface (TII)—Overview approved with some protocol information included. The performance and testing standards are not completed.

- Network Management Interface (NMI)—Overview approved. Protocol information has been generally identified but not specified in a protocol standard. The performance and testing standards are not completed.

- Data Network Interface (DNI)—Concept broadly outlined in other approved documents. Protocol information has been generally identified but not specified in a protocol standard. The performance and testing standards are not completed.

While all of the interfaces are important to a fully operational Project 25 system, some interfaces are more critical than others. In that regard, CAI, ISSI, FSSI, and CSSI standards are the most crucial to ensuring operability and interoperability of systems for the public safety community. The CAI is the most mature interface, and products are available commercially with this standardized interface. There has been very good recent progress (as defined above) on the protocol standards for the ISSI, the FSSI, and the CSSI. The users are encouraged that the Project 25 process has become productive and responsive and look forward to the new products that will emerge in 12–18 months after the standards are published.

ICIS Chairs

Christopher Lombard
Communications Special Operations
Seattle Fire Department

Christopher Lombard works with the Seattle Fire Department, where, in addition to working both in the operations division and as a dispatcher, he manages a variety of projects, including communications coordination for the department's specialty teams, liaison for the department's interoperability with other jurisdictions, and project manager/coordinator for the department's mobile computing systems. His current responsibilities include the coordination, management, and maintenance of communications equipment and policies for special operations teams (including Urban Search and Rescue, Metropolitan Medical Response Systems, Emergency Medical Service, etc.). Recent projects he has helped coordinate within the department include a wireless data project (mobile computing), interoperability initiatives, and computer-assisted dispatch/records management system upgrades. Mr. Lombard has been in the Fire Service for over 14 years and a member of the IAB and the ICIS SubGroup from their inception. He is also involved in active communications-related roles on National Fire Protection Association 1221 (the standards committee for Public Emergency Service Communication), Project SAFECOM's Advisory Group, the Federal Emergency Management Agency, and as a Public Safety Communications Instructor at Texas A&M University/Texas Engineering Extension Service.

William Snelson
Chief, Office of Emergency Management
United States Marshals Service

William Snelson began his career 23 years ago in the Buncombe County (North Carolina) Sheriff's Department, where he became certified as a law enforcement instructor and jail school administrator. His assigned positions included Patrol Sergeant, Field Training Officer, Field Commander of the Tactical Unit, and Head of the Training Division. Since joining the U.S. Marshals Service in 1991, Mr. Snelson has worked as a criminal investigator in the field and in the Internal Affairs Division, served as Assistant Chief of the District of Columbia Superior Court and Chief Deputy of the Eastern District of North Carolina, and now serves as the Chief of the Office of Emergency Management. Certified in numerous disciplines, including operating in hazardous environments, Chief Snelson leads the Marshals Service's elite Hazardous Response Unit and oversees the Security Operations Unit for the Strategic National Stockpile.

Mission

The Detection and Decontamination (D&D) SubGroup provides input, direction, standards, and information to first responders on equipment for sampling, detecting, identifying, quantifying, monitoring, and decontaminating WMD CBRNE agent contamination throughout designated areas or at specific points and on items that support detection activities.

Functions

The D&D SubGroup is responsible for addressing equipment identification, interoperability, and standardization in three complex areas of detection and decontamination: chemical warfare agents (including toxic industrial chemicals), biological warfare agents, and radiological/nuclear materials. This work is accomplished by articulating user requirements for D&D equipment; identifying existing equipment guidelines or performance standards that address user requirements; and developing, maintaining, and updating the D&D portion of the SEL, which provides responders with a reference to the type of equipment required to prepare for, respond to, mitigate, and recover from a CBRN incident.

Goals

- Facilitate the exchange of information between the first-responder community, government agencies, and the private sector, including the sharing of knowledge, expertise, and technology regarding the detection, identification, warning, and decontamination of CBRNE incidents.

- Participate in the development and implementation of performance criteria, standards, and test protocols for D&D response equipment and the identification of additional equipment and standards requirements.

- Facilitate and promote the standardization and interoperability of D&D capabilities to optimize response team integration and operations at the local, state, and national levels.

- Facilitate and promote the proper selection and use of the best available D&D equipment and

Detection & Decontamination (D&D) SubGroup

CO-CHAIR

James Schwartz
Arlington County (VA) Fire Department

FEDERAL CO-CHAIR

Elaine Stewart-Craig
Department of Defense, Research, Development and Engineering Command, Edgewood Chemical Biological Center

Membership

Edward Bailor
United States Capitol Police

Thomas Brandon
Suffolk County (NY) Police Department

Charlie Brannon
National Institute of Standards and Technology

Stephen Clendenin
Massachusetts Department of Fire Services

John Eversole
Chicago (IL) Fire Department

Alim Fatah
National Institute of Standards and Technology

Mark Gutke
Jefferson County (CO) Sheriff's Office Bomb Squad

procedures to optimize safety, interoperability, and efficiency.

- Encourage governmental, military, and private agencies, as well as manufacturers, to sponsor priority research and development projects to satisfy local, state, and federal CBRN incident response equipment requirements.

Current Projects

The DHS S&T Directorate's First Responder CBRNE Protective and Operational Equipment Standards Development Program is continuing to develop performance criteria and test methods to allow manufacturers of CB equipment to produce useful equipment and the emergency response community to be able to make knowledgeable procurement decisions. This program is executed in close collaboration with NIST, with OLES conducting the technical program management of the project. The program involves many agencies and activities, including NIOSH; the U.S. Army Research, Development and Engineering Command's ECBC and the U.S. Army National Protection Center at Natick, Massachusetts; the Dugway Proving Ground; ASTM International; and NFPA.

The goal of the First Responder CBRNE Protective and Operational Equipment Standards Development Program is to enhance public safety by promulgating standards for CBRNE protective equipment that ensure minimum performance, quality, reliability, and interoperability. This suite of standards and subsequent performance evaluations will be disseminated to the public safety community to help members make informed equipment purchases and to guide manufacturers, developers, and the test and evaluation community to ensure product compliance. These standards support the needs of the emergency first-responder community, including law enforcement, the fire service, HAZMAT, and emergency medical service personnel. These standards will focus primarily on the performance requirements for equipment used during the initial response and rescue phases of a CBRNE incident. The D&D SubGroup supports the program by providing user input to requirements in personnel decontamination equipment and CB detection equipment.

Personnel Decontamination

As part of the First Responder CBRNE Protective and Operational Equipment Standards Development Program, ECBC developed a database from a decontamination literature study. Technical experts

Roger Hatfield
Nashua (NH) Fire Department

Robert Novak
United States Marine Corps, Chemical Biological Incident Response Force

Robb Pilkington
University of Missouri Fire and Rescue Training Institute

Gene Ryan
Chicago (IL) Fire Department

Peter Stevenson
United States Environmental Protection Agency

Wes Thomas
Downers Grove (IL) Fire Department

Subject Matter Experts

Thomas Emsley
Department of Defense, Program Executive Office for Chemical and Biological Defense

Irene Richardson
United States Army Center for Health Promotion and Preventive Medicine

were contracted to locate appropriate decontamination technology reports and to extract data from those reports. Data include a general description of report quality/source, decontamination technology reported, mechanisms of decontamination, effectiveness of decontamination, time to achieve decontamination, agents decontaminated, material compatibility issues, environmental factors if reported, safety issues, concept of use, and document reference information. This information has been provided to RKB for incorporation with the SEL.

Chemical Detection Devices

The Chemical Warfare Vapor Detector Standard (CWVD) has undergone moderate modification in the past year after release for public comment through ASTM Committee E54, Homeland Security Applications. The modified draft CWVD standard was released for subcommittee comment in June 2005 to ASTM E54.01, Sensors. The subcommittee includes manufacturers, test facilities representatives, and government personnel, many of whom participated in developing the first version of the standard. During the subcommittee review process, the manufacturers' representative resigned his position at ASTM. Several new manufacturers' representatives have since been identified and added to the subcommittee. These new representatives have received the CWVD document and are preparing comments. The rewritten document, with the inclusion of the new manufacturers' comments, will be balloted through ASTM E54.01 in early 2006.

Biological Detection Devices

Based on a need articulated by responders across the country, including the IAB, the DHS Standards Portfolio in Science and Technology has sponsored the project "Evaluation of Prescreening Technologies" for possible biological agents/threats. The IAB has been participating in the project and will continue. Phase 1 will complement the evaluation of handheld assays for Bacillus anthracis completed last year. Partners in the effort include the DHS Center for Domestic Preparedness, NIST, AOAC International, and DoD laboratories in Maryland and Utah. AOAC is serving as lead coordinator of this initiative, with input from many experts in the homeland security community. The interagency team is also cooperating on the development of sample collection standards, training, and protocols (CONOPS). These procedures and study designs will be adaptable to additional handheld assays and other prescreening technologies approved in future studies.

Personal Decontamination Standards

Work continues to be performed to further define the amount of contamination and cross-contamination responders are likely to encounter during a chemical terrorist event. The objective for 2005 was to continue to experiment and study the most chaotic hazard dispersion method, explosive dissemination using improvised explosive devices. Continuing explosive dispersion tests of liquids were conducted to determine the quantity and specific body-site of high-velocity liquids that may be deposited on personnel and surfaces in the hot zone. This information is being used to define the level of personnel decontamination required to ensure that responders have been decontaminated to a "safe" level.

Decontamination Equipment Standards

Two equipment performance standards will be provided to ASTM E54.04 Homeland Security Applications, Decontamination Group.

D&D Chairs

James Schwartz
Chief, Arlington County Fire Department

James Schwartz is Chief of Arlington County (Virginia) Fire Department, where he has worked for 22 years. He served in a variety of positions before his appointment as Chief, including Assistant Chief of Operations, overseeing all response-related activities—fire, EMS, hazardous materials and technical rescue response, incident management, and operational training. The Arlington County Fire Department's 300+ personnel serve a community of nearly 200,000 residents in a 26–square mile area. It was the lead agency for the response to the September 11 attack at the Pentagon. Chief Schwartz has a B.S. in Fire Administration from the University of Maryland. He chairs the sustainment committee for Arlington County's Metropolitan Medical Response System, a federally funded program that focuses on the integration of a community's response capabilities for a terrorism event. He is also currently Vice Chair for the Washington Area Council of Governments Fire Chiefs Committee. Chief Schwartz is a member of the International Association of Fire Chiefs' Committee on Terrorism and Homeland Security and chairs the Senior Advisory Board for the Responder Knowledge Base.

Elaine Stewart-Craig
Chemical Engineer; Research, Development and Engineering Command
Edgewood Chemical and Biological Center

Elaine Stewart-Craig is a chemical engineer who has worked for the Edgewood Chemical and Biological Center (ECBC) for more than 20 years. Her current assignment is Program Manager for the development of chemical and biological standards for commercial equipment, including protective ensembles and detectors, to be used by the emergency response community in the event of a terrorist attack. This program—funded by the Department of Homeland Security—is a joint effort between ECBC, the National Institute for Occupational Safety and Health, and the National Institute of Standards and Technology. Ms. Stewart-Craig has a B.S. in chemical engineering from the University of Virginia and an MBA from Loyola College. She began her career in personnel protection equipment, designing and producing chemical/biological protective masks and filters for the military and has been involved with quality assurance, strategic planning, and future business development for the ECBC. Ms. Stewart-Craig is a member of American Society for Testing and Materials Committee E54 Homeland Security Applications and has been involved in the area of homeland security/defense since 1995.

Mission

The mission of the Medical SubGroup (MSG) is to provide guidance to the IAB on medical, public health, and incident health and safety equipment, supplies, and pharmaceuticals needed to respond to CBRNE events. This guidance is developed from member experience and discussion of relevant material. In addition, the MSG reviews and makes recommendations to the IAB on needs for new or modified equipment performance and operational standards. The MSG strives to understand and document in the SEL and RKB the generic medical, public health, and incident health and safety equipment, supply, and pharmaceutical capabilities to support responders, first receivers, and volunteers as they prepare for, respond to, and recover from CBRNE events.

Membership

MSG members represent local, state, and federal organizations and academic institutions. They are familiar with local, state, and federal plans, procedures, programs, guidance, functions, systems, and capabilities for public health and medical response. Current members have operational experience with the emergency medical systems, primary and emergency medical care, hospital systems and operations, the National Disaster Medical System, disaster medicine and response, public health, law enforcement and special events operations, and emergency management. The MSG attempts to maintain active members who are involved in the public health and medical aspects of incident response and the use of and operational considerations for equipment, supplies, and pharmaceuticals during incident response. The MSG also supports the other IAB SubGroups with public health and medical representatives. The MSG maintains contact with SMEs for assistance with specific topics or areas of interest. SMEs occasionally participate in MSG meetings to expand the breadth of knowledge and resources available to the IAB as a whole.

Role and Functions

The MSG participates in all aspects of the IAB. Due to the diversity of the mission, which includes

Medical SubGroup (MSG)

CO-CHAIR

Christian Callsen
Austin - Travis County (TX) Emergency Medical Services

FEDERAL CO-CHAIR

Stephen Skowronski
Centers for Disease Control and Prevention

Membership

Sandy Bogucki
Yale University Emergency Medicine

Kelly Burkholder-Allen
Medical University of Ohio

Richard Burton
Placer County (CA) Health and Human Services

Joshua Creighton
Wake County (NC) Emergency Management

Neal Dolan
United States Secret Service

Susan Hard
Mid-Atlantic Regional Council, Public Health

Keith Holtermann
United States Department of Health and Human Services

consideration for and understanding of the care of casualties as well as the health and safety needs of personnel participating in the management of the incident, information exchange with each of the other IAB SubGroups is essential. Specifically, the functions and roles of the MSG include the following:

- Participating in SCC meetings to represent medical, public health, and incident health and safety interests.

- Participating in S&T Committee meetings to promote inclusion of medical, public health, and incident health and safety interests.

- Reviewing, improving, and updating the medical section of the SEL and RKB.

- Reviewing, improving, and updating other sections of the SEL and RKB for integration of medical, public health, and incident health and safety needs.

- Understanding and documenting current and potential gaps and needs in medical, public health, and incident health and safety equipment and supplies.

- Supporting the development of new standards or modification and integration of existing standards that are needed for the medical, public health, and incident health and safety aspects of the response.

The majority of the equipment and pharmaceuticals used in the medical management of victims of a CBRNE event are regulated by the U.S. Food and Drug Administration. Consequently, the compilation of equipment and pharmaceuticals in the medical portion of the SEL is commonly found in today's prehospital and clinical environments. However, the MSG also reviews and recommends for reference, formal adoption, or change other available performance standards, technical specifications, and standard guidance for SEL items.

Accomplishments

- Expanded the SEL medical section online selection factors to include public health.

- Added a public health medical equipment section to the SEL.

- Worked with the PP&OE SubGroup to consider OSHA guidance for first receivers and to consider

Knox Andress
Emergency Services, Shreveport LA

Paul M. Maniscalco
National Association of Emergency Medical Technicians

Timothy McAndrew
City of Las Vegas (NV), Office of Emergency Management

Kenneth Miller
Orange County (CA) Fire Authority

Porter Shellhammer
Sarasota County (FL) Fire Department

Thomas Skowronski
Phoenix (AZ) Fire Department

Lawrence E. Tan
New Castle County (DE) Police Department, Emergency Medical Services

Thomas Walsh
City of Seattle, (WA) Fire Department

Subject Matter Experts

Peter Brewster
United States Department of Veterans Affairs

Frank Cilluffo
George Washington University

John Ferris
United States Department of Occupational Safety and Health Administration

Stephan Graham
United States Army Center for Health Promotion and Preventive Medicine

Paul Kim
Department of Veterans Affairs

John Piacentino
United States Department of Occupational Safety and Health Administration

public health initiatives and issues.

- Continued to emphasize adding links within the RKB to Department of Health and Human Services grant guidance (specifically from the Centers for Disease Control and Prevention and the Health Resources and Services Administration).

- Included discussion and vocal concern for special needs populations during all IAB meetings.

- Reviewed and recommended additional health and safety information for SEL items within other SEL equipment sections.

- Developed the following draft title, problem statement, purpose, and scope for a CONOPS:

  – Title—A Concept of Operations to Help Prepare Emergency Medical Services (EMS), Medical and Public Health Authorities Respond to a CBRNE Event

  – Problem statement—EMS, medical, and public health authorities may not have an integrated and coordinated understanding (concept) for training, operations, and standardized equipment to prepare for and respond to a CBRNE event with other response organizations within their jurisdiction and state.

  – Purpose—The purpose of the CONOPS is to serve as a Web-based resource for EMS, medical, and public health authorities across the country to use, update, and share to be better prepared to respond to a CBRNE event in their jurisdiction. Secondary goals are to improve casualty management, communications, and information sharing among EMS, medical, public health, and other response authorities and to improve their knowledge and use of and the quality of the SEL and RKB.

  – Scope—The CONOPS will focus on and be applicable to the needs and interests of state, local, and tribal EMS, medical, and public health authorities who are responsible for preparing for and responding to a CBRNE event.

Initiatives and Progress

Many lessons will be learned from the events of 2005. The MSG hopes to include these lessons learned with emphasis on the following considerations during work sessions and discussions throughout 2006:

- the importance of "all hazards" (not just terrorism) emergency preparedness and the inclusion of this perspective in the continued evolution of the IAB and SEL

- health and medical knowledge and the use of hazard and vulnerability analysis in planning efforts

- the possible inability of evacuees to manage chronic diseases and the impact of large numbers of victims with preexisting medical conditions on the health and medical infrastructure

- the special-needs population

- health and medical response and support involving sheltering

Specific work will focus on the following:

- Reviewing, discussing, and including equipment, CONOPS, and other information about medical surge capacity.

- Supporting DHS requests to correlate equipment capability information within the Target Capability List and Universal Task List.

- Increasing involvement and information exchange with the other SubGroups and the response community to shape and focus MSG work priorities.

- Reviewing veterinary response and integration of equipment requirements within the SEL.

- Reviewing special needs, sheltering, and medical surge requirements and recommending appropriate changes to the SEL.

Medical Chairs

Christian E. Callsen, Jr.
Division Commander
Austin-Travis County Emergency Medical Services

Chris Callsen, Jr., LP, the Senior Division Commander, Homeland Security and Planning for the Austin-Travis County (Texas) Emergency Medical Services Department (A/TCEMS), provides leadership in the areas of terrorism preparedness and response at a local, regional, and national level through his participation on the Austin/Travis County Counterterrorism Planning Group and as Chair of the Capital Area Planning Council's Homeland Security Task Force, as well as his work as the State and Local Co-Chair of the IAB's Medical SubGroup. At A/TCEMS, Mr. Callsen is responsible for departmental strategic development; several areas of special response, including dignitary protection, counterterrorism, mass casualty and major events; and general system operational issues. Educated at Georgetown University and with more than 20 years of emergency services experience, Mr. Callsen has worked as a flight paramedic, field training officer, and clinical operations manager and in senior operational, management, and leadership positions across the United States. He has also worked in several areas of special operations, including hazardous materials, tactical, urban search and rescue, and technical rescue.

Stephen Skowronski
Exercise and Preparedness Coordinator
Centers for Disease Control and Prevention

Steve Skowronski's first career was in the U.S. Army, where he served as a chemical decontamination officer; an aeromedical evacuation rotary wing pilot; a medical plans, operations, and training officer; and a Department of Defense medical liaison to federal health and medical support. He participated in numerous domestic and overseas exercises and operations, including military support to Cuban refugee relocations in 1980 and the response to Hurricane Bertha. Following his military career, Mr. Skowronski worked as the Department of Health and Human Services' Regional Emergency Coordinator in New York City and Boston. In 2000, he began working for the Centers for Disease Control and Prevention, National Pharmaceutical Stockpile Program (currently Strategic National Stockpile) before his current assignment with the National Center for Environmental Health, Environmental Public Health Readiness Branch. Mr. Skowronski has been a member of the IAB Medical SubGroup since 1999.

Mission

The mission of the Training SubGroup is to improve responder mission performance by conducting a cross-disciplinary review of and providing input on training doctrine and guidance developed for the responder community.

Membership

The Training SubGroup consists of representatives from local, state, and federal responder agencies and institutions engaged in responder training. A goal of the SubGroup is to engage all of the response disciplines as defined by DHS Preparedness Directorate's Office of Grants and Training.

Roles and Functions

- Focus on the operational applicability of the training doctrine and programs.
- Provide guidance and input on program improvements.
- Facilitate the implementation of training programs that support a capability-based response system.

Initiatives and Progress

The Training SubGroup was newly chartered by the IAB in 2005. The IAB membership and federal partners recognized that, in addition to the core mission of recommending appropriate responder equipment advocacy for appropriate performance standards for that equipment, a crucial need exists to provide guidance on training required to effectively and safely respond to emergency incidents.

The basis for this guidance is enhancing preparedness capabilities and improving responder performance:

Training SubGroup (TSG)

CO-CHAIR

Alan "A.D." Vickery
Seattle (WA) Fire Department

FEDERAL CO-CHAIR

Barbara Biehn
Department of Homeland Security, Preparedness Directorate's Office of Grants and Training

Membership

Ed Allen
Seminole County (FL) Sheriff's Office

Roy Alson
Forsyth County (NC), Emergency Medical Services

Christina Baxter
Douglas County (GA) Fire Department

Richard Callis
Department of Homeland Security, Federal Emergency Management Agency

Terry Cloonan
National Institute for Occupational Safety and Health

Teresa Embrey
Technical Support Working Group

- Review critical tasks and subtasks for applicability to the first responder community.

- Provide responder input into identifying the training required (federal, state, local, and tribal) to successfully tie performance of tasks to overall capability.

- Provide responder input on how best to achieve improved performance.

- Review and recommend improvements to capability-based training programs based on risk and need.

- Review and provide input on training programs that strengthen the links between strategies, capabilities, and tasks.

- Initiate a program to link training requirements with equipment recommendations contained in the RKB.

- Assist in recommending a minimum core curriculum applicable across response disciplines.

- Coordinate with the SCC to assist in the adoption, development, and implementation of appropriate and relevant training standards.

Ongoing Commitments

The success of the Training SubGroup will be measured by its ability to act as a "sounding board" for training doctrine and programs. This task is essential to focusing funds and resources on relevant, operationally sound, and measurable capability-based training programs.

Priorities of 2005–2006

- Tie training requirements to equipment recommendations.

- Review and provide recommendations on improvement of existing DHS training doctrine for applicability to performance.

- Review existing training programs for relevance to Homeland Security Presidential Directive 8.

John Ferris
United States Department of Occupational Safety and Health Administration

Albert Fluman
Department of Homeland Security, National Incident Management System Integration Center

Stephen Foley
United States Capitol Police

Robin Friedman
Seattle (WA) Public Utilities

Paul Hauptman
Sacramento (CA) Sheriff's Office

Adam McLaughlin
Port Authority of New York/New Jersey

Gregory Noll
South Central Pennsylvania Counter-Terrorism Task Force

W. Ronald Olin
Lawrence (KS) Police Department

Steve Souder
Montgomery County (MD) Communications Center

Jamie E. Turner III
Delaware Emergency Management Agency

Roy Waugh
University of Washington

Subject Matter Expert

John Piacentiano
United States Department of Occupational Safety and Health Administration

Future Initiatives

The process of providing advice on relevant and successful responder-focused training programs is an ongoing process, driven by technology, threat, capability, and personnel. The Training SubGroup will identify and prioritize annual training requirements based on these factors.

The Training SubGroup will work closely with the SCC to identify standards, where they exist, and identify their application to capability-based training. Where standards do not exist, the SubGroup will advocate, through the IAB, for their establishment.

Summary

Equipment is only as good as those trained to use it effectively and safely. The IAB has tasked the Training SubGroup with providing input on a national level on how best to train the responder community to address their daily responsibilities as well as catastrophic events.

Training Chairs

Alan Dennis Vickery
Assistant Chief of Operations
Seattle Fire Department

A.D. Vickery, a 39-year veteran of the Seattle Fire Department, is currently the Assistant Chief of Operations, dealing with all aspects of the department in regards to fires, hazardous materials, emergency medical services, special operations, and homeland security. He was previously Deputy Chief of Special Operations, responsible for all operational issues for the department's specialty teams—the Hazardous Materials Unit, the Marine Firefighting Unit, the Technical Rescue Unit, Emergency Preparedness, Metropolitan Medical Strike Team, Urban Search and Rescue, and Homeland Security Planning. Assistant Chief Vickery has served as a Firefighter/Paramedic, the head of the Fire Investigation Unit, and on both Engine and Ladder Companies. He is recognized for his proactive role in preparing firefighters to safely perform their jobs using the latest technology available.

Barbara T. Wisniewski Biehn
Deputy Director, Exercise and Training Division
Department of Homeland Security
Preparedness Directorate's Office of Grants and Training

Barbara Biehn is the Deputy Director of the Exercise and Training Division within the Department of Homeland Security Preparedness Directorate's Office of Grants and Training (G&T), formerly the Office for Domestic Preparedness. In this role, she is responsible for integrating training and exercises in support of the cycle of preparedness. G&T is the federal government's lead agency responsible for preparing the nation against terrorism by assisting states, local and tribal jurisdictions, and regional authorities as they prevent, deter, and respond to terrorist acts. Ms. Biehn previously served as Acting Director of the Training Division, overseeing a $200 million program for establishing, coordinating, and maintaining comprehensive, high-quality preparedness training for the nation through a network of 45 training partners. Her background includes a number of years in the Department of Defense's Consequence Management Program Integration Office as a Project Director of Advanced Distributed Learning for National Guard Civil Support Teams. In April 2004, Ms. Biehn received the Pioneer Award from the Federal Government Distance Learning Association. Her further experience as an intelligence officer in the US Air Force gives Ms. Biehn an appreciation of training and operational challenges in the face of a complex threat. She holds a B.A. in physics and French from the University of Virginia and an M.S. in strategic intelligence studies from the Joint Military Intelligence College.

Strategic Plan for Developing a Suite of Chemical, Biological, Radiological, Nuclear, and Explosives Protective Equipment Standards

Executive Summary

A common suite of first responder equipment standards is needed to establish minimum performance and interoperability requirements for chemical, biological, radiological, nuclear, and explosives (CBRNE) equipment utilized by local, state, and federal first responders to acts of terrorism and CBRNE incidents. Such standards, and the associated requirements and test protocols, serve multiple purposes, including (1) establishing baseline capabilities and limitations for currently available equipment, (2) guiding production and technological developments by manufacturers and designers, and (3) guiding equipment procurement decisions by the public safety and health communities. This document presents the strategy and process within the InterAgency Board (IAB) for Equipment Standardization and Interoperability for identifying, adopting, modifying, and developing CBRNE equipment standards. The priorities for developing standards will be established and periodically reviewed by the IAB Standards Coordination Committee (SCC). It does not address the specifics of schedules, resources, or those standardization processes that are agency and organization specific. It is relevant to note that no such suite of CBRNE equipment standards exists today, and it is a goal of the IAB to remedy this shortcoming.

This CBRNE Equipment Standards process will be accomplished through two phases a "Preparation Phase" and an "Implementation Phase." During the Preparation Phase, requirements for standards will be identified from local, state, and federal first responder functional and operational equipment requirements. These equipment requirements will be compared with existing standards to determine whether existing standards can be adopted into the CBRNE Equipment Standards Suite, modifications are required, or gaps exist requiring new standards to be developed. During the Implementation Phase, the recommendations of the equipment SubGroups will be coordinated with appropriate standards organizations to facilitate adoption, modification, and development of standards for incorporation into the CBRNE Equipment Standards Suite. Gaps in standards will be presented to sponsoring agencies and organizations for new standards development. A review process will be established and managed by the SCC to periodically validate the suite and all incorporated standards.

The National Institute of Standards and Technology, Office of Law Enforcement Standards (NIST/OLES), as the executive agent for the SCC, will implement and administer the CBRNE Equipment Standards Suite repository, to include promulgation where appropriate. Implementation of this suite of standards is expected to be a multi-year process. In the interim, to address the user communities' needs for CBRNE equipment information, NIST/OLES, on behalf of the SCC, will publish and administer a first responder equipment set of guides to assist first responder agencies in making informed procurement decisions.

The Strategic Plan for Developing a Suite of CBRNE Protective Equipment Standards

1.0 Purpose

A common suite of CBRNE equipment standards is necessary to ensure compliance with minimum requirements for performance, commonality, and interoperability of equipment utilized by local, state, and federal first responders in the public safety and health communities. Such standards, as well as the specifications and test protocols that evolve from them, are needed to guide the efforts of the manufacturers and equipment developers and to serve as a guide for informed procurement decisions by criminal justice, medical/public health, and public safety agencies. The phrase "public safety and health communities" includes law enforcement, fire fighter, HAZMAT, emergency medical, and other related

agencies that consist of the first elements to respond to public safety CBRNE incidents or attacks and also pertains to organizations that are involved in the mitigation and recovery phases of such attacks. This document describes the strategy and process that the CBRNE Equipment Standards Project will take to develop that common CBRNE Equipment Standards Suite. This document further serves as the action plan for the CBRNE Equipment Standards Project and identifies the tasks that must be undertaken, and the organizations responsible for undertaking them, to implement a CBRNE Equipment Standards Suite. It does not address the specifics of schedules, resources, or those standardization processes that are agency specific. Those remain to be developed within the context of this strategic plan. The IAB SCC will establish the prioritized order for developing or adopting standards and will periodically review and revise the prioritization as requirements change or as standards are implemented.

2.0 Goals and Objective

2.1 *Goal of the CBRNE Equipment Standards Project -* The goal is to enhance public safety and health by defining and promulgating a set of standards for CBRNE equipment that ensures minimum performance, quality, and reliability and that are accepted by public safety and health communities. This suite of standards will be disseminated to the local, state, and federal public safety and health communities to facilitate informed equipment procurement and to guide manufacturers, developers, and the test-and-evaluation community to ensure product compliance.

2.2 *Objective of the CBRNE Equipment Standards Project -* The objective is to facilitate the adoption of standards that can be used by local, state, and federal public safety and health communities. To accomplish this, strong working relationships must be established with the public safety and health communities, to the point where the communities' representatives play a key and integral role in all facets of the standards process. Further, the project must be oriented, to the maximum extent possible, toward using the approaches, standards, specifications, etc., that already exist within standards development organizations (SDOs), standards-related organizations (SROs), and standards enforcement organizations (SEOs). This project will not reinvent work previously done or provide redundant products, but rather will take advantage of all available information and standards that may be applicable. This project will conform to the regulatory statutes and guidance governing the SDOs, SROs, and SEOs, as applicable.

3.0 Overview of the CBRNE Equipment Standards Suite Development Process

The standards development process consists of two distinct phases - the "Preparation Phase" and the "Implementation Phase." During the Preparation Phase, functional requirements are defined and existing standards are surveyed to determine whether they address these requirements. During the Implementation Phase, gaps in the existing standards will be addressed. Additionally, because the implementation of this suite of standards is necessarily a time-consuming process, some interim steps will need to be taken to provide manufacturers, developers, and procurement officials guidance upon which they can act now.

3.1 *Preparation -* During the Preparation Phase, requirements for standards will be identified by determining the first responder functional equipment requirements and comparing those requirements against existing standards to see (1) if existing standards can be adopted into the CBRNE Equipment Standards Suite (2) if they need to be modified before being adopted, or (3) if new standards need to be developed. Functional requirements are derived in equal measure from an assessment of the threat(s) with which first responders will have to deal and the operational practices and procedures (i.e., how they do business) that they will bring to bear to deal with that threat. Users will be involved in every stage of this process, providing initial input and feedback on final products.

3.1.1 *Identification of the Threat -* The first step in the standards development process will be

to do a threat assessment to identify the particular agents that are likely to be encountered in a CBRNE terrorism situation, the scenarios in which these agents are likely to be used by terrorists, and the likely methods of agent delivery in a civilian environment. Since the best information is likely to be held by national security organizations and will most likely be classified, it will, of necessity, be restricted to a limited number of people who have the proper security clearances. The second step of the threat assessment will involve situations where simulated releases can be conducted, using simulants, to develop the appropriate "models" and response methods, while working with trained public safety and medical teams.

3.1.2 *Identification of Operational Requirements* - This step involves collection of detailed information regarding the functional and operational requirements of CBRNE equipment based on user needs, practices, and procedures (i.e., how they go about their business). While identification of the threat defines the nature of the agent(s) and the design parameters for a self-contained breathing apparatus, for example, practices and procedures will define the size and weight of that apparatus, how long it needs to function, and how (and if) it needs to be decontaminated. The information will be summarized and catalogued by equipment type.

3.1.3 *Survey and Assessment of Existing Standards*

3.1.3.1 Existing standards relevant to CBRNE equipment will be surveyed to identify any that can be used without any modification, as well as those that can be used with some modification. The SCC will develop a review and approval procedure for both adoption and modification of existing standards. That procedure must take into account the agency-specific requirements and procedures of organizations currently involved in the development of standards.

3.1.3.2 In instances where the SCC review of existing standards has determined that a particular standard(s) not be adopted in whole or in part, it shall issue a report to the IAB, documenting the limitations and/or shortcomings of the existing standard(s).

3.1.3.3 Recommendations for adoption, modification and adoption, as well as the identification of new standards to be developed, will be recorded for action during the Implementation Phase.

3.1.3.4 Implementation - During the Implementation Phase, recommendations resulting from the Preparation Phase will be carried out through coordination with appropriate SDOs, SROs, and SEOs to facilitate adoption, modification, and development of standards for incorporation into the CBRNE Equipment Standards Suite. A periodic review process to validate the suite, and the standards incorporated into it, will also be implemented.

3.2 *Adoption of Existing Standards* - Standards that require no modification will be added "as is" to the CBRNE Equipment Standards Suite. The adoption and inclusion of a standard into the suite will follow the review and approval process as developed by the SCC. Cognizant SDOs, SROs, and SEOs will be notified. These standards will be disseminated to the local, state, and federal public safety and health communities and to manufacturers, developers, and the test-and-evaluation community.

3.2.1 *Modification of Existing Standards* - If the SCC determines that an existing standard needs to be modified before it can be used, the review process and a discussion of the

limitations shall be documented. Modification to standards will be coordinated with the cognizant SDOs, SROs, and SEOs for implementation. In cases where existing standards are not able to be modified to meet the specific needs of the IAB, a new standard will be developed as discussed in paragraph 3.2.2. These modified standards will be disseminated to the local, state, and federal public safety and health communities and to manufacturers, developers, and the test-and-evaluation community.

3.2.2   *Development of New Standards* - This type of document will need the most time and resources to develop, as well as the most extensive review process to ensure consensus. Where applicable, the need for new standards will be coordinated with the cognizant SDOs, SROs, and SEOs for development. If the appropriate SDOs, SROs, and/or SEOs cannot be convinced to modify a standard, or if no cognizant SDO/SRO/SEO can be found to develop a new standard, the identified requirement will be addressed through the issuance of a voluntary standard(s). These standards will be issued as National Institute of Justice (NIJ) standards. These standards will be disseminated to the local, state, and federal public safety and health communities and to manufacturers, developers, and the test-and-evaluation community.

3.2.3   *Methodology for Reviewing Standards* - A process will be put in place so that, on a biannual, periodic basis, the standards included in the CBRNE Equipment Standards Suite will be reviewed in light of evolving threats, evolving technologies, user practices, and user procedures to:
- Reaffirm still useful standards and disseminate that information to the local, state, and federal public safety and health communities and to manufacturers, developers, and the test and evaluation community.
- Recall obsolete standards once a review finds a document obsolete; and disseminate that information to the local, state, and federal public safety and health communities and to manufacturers, developers, and the test-and-evaluation community.
- Provide notification when any standards incorporated into the CBRNE Equipment Standards Suite are updated, modified, revised, replaced, or superseded by the SDO or SRO and when exceptions or waivers are granted by SEOs.

3.3   *Interim Steps* - A first responder equipment compendium and set of guides will be developed and published to assist first responder agencies in making informed procurement decisions prior to the implementation of a CBRNE Equipment Standards Suite. These documents will catalogue existing CBRNE equipment and their characteristics and contain test data where found. Of necessity, interim voluntary standards and/or comparative evaluation protocols for testing of CBRNE equipment will also be developed and implemented for selected categories of equipment and threats.

4.0 Organization and Responsibilities

4.1   The key organizations within the IAB that facilitate the development of the CBRNE Equipment Standards Suite are the equipment SubGroups and the Standards Coordination Committee. The equipment SubGroups take the lead for developing the functional requirements for equipment in their commodity areas, in close collaboration with the user community. They also identify and recommend to the SCC existing standards for direct incorporation into the CBRNE Equipment Standards Suite, standards that could be incorporated with modification, and new standards that need to be developed. The SCC, which includes the Chairs of the equipment SubGroups, will manage this process and will be principally responsible for implementation and management of the suite.

4.2   *Standards Coordination Committee (SCC)*

4.2.1   The SCC consists of a panel of representatives from various federal and private standards organizations, the Co-Chairs of the equipment SubGroups, and the Co-Chairs of the Science and Technology Committee. The SCC is responsible for coordinating CBRNE equipment standards projects of the IAB SubGroups with other organizations and enforcing authorities including, but not limited to, National Institute for Occupational Safety and Health (NIOSH), National Fire Protection Association (NFPA), Occupational Safety and Health Administration (OSHA), NIJ, Department of Energy (DOE), Federal Emergency Management Agency (FEMA), Environmental Protection Agency (EPA), and the NIST/OLES. As the various equipment SubGroups of the IAB determine minimum performance, quality, reliability, and other qualification requirements for their respective commodities, the SCC, representing regulatory, consensus, and voluntary standards organizations, will endeavor to create national harmonization by incorporating the requirements into its standards. The SCC will also serve as a reviewer during the development of qualification requirements by other SubGroups to:
- Alert SubGroups and request reconciliation when contradictory requirements for complementary equipment are proposed.
- Alert SubGroups when proposed requirements are contradictory to federal or state regulations.
- Raise attention to similar or additional qualification requirements under internal development within the regulatory, consensus, and voluntary standards organizations.
- Provide technical and non-technical advice for improvements.

4.2.2   In the absence of appropriate standards for equipment deployed by emergency responders, the SubGroup members will serve as liaisons to their respective organizations to encourage development and harmonization of standards. NIST/OLES, as the executive agent for the SCC, will implement and administer the CBRNE Equipment Standards Suite, to include promulgation.

4.3   *Equipment SubGroup* - There are four equipment SubGroups established by the IAB. These SubGroups are composed of subject matter experts who address domestic preparedness equipment, systems, and protection issues related to a specific commodity area. The four equipment SubGroups are (1) the Medical SubGroup, (2) the Personal Protective and Operational Equipment SubGroup, (3) the Detection and Decontamination SubGroup, and (4) the Interoperable Communications and Information Systems SubGroup. Each SubGroup has two Co-Chairs, one from the ranks of the SubGroup's local and state ranks and the second from federal or private ranks. The role of each SubGroup is to maintain and update its portion of the Standardized Equipment List and to address the ways and means by which technology can support CBRNE response concerns. Additionally, the SubGroups take the lead for developing the functional requirements for equipment, and identify and develop priorities for standards development within their respective commodity areas. The SubGroups identify existing standards that may be incorporated into the CBRNE Equipment Standards Suite without change, identify standards that may be incorporated into the suite after modification, and recommend areas for development of standards where none currently exist.

4.4   *The Science and Technology Committee (S&T)* - The mission of the S&T is to identify interagency (local, state, and federal) first responder research and development (R&D) requirements and innovative technologies (fieldable in the next 6 months to 5 years) that address CBRNE detection, individual and collective protection, medical support, decontamination, communications systems, information technology, and miscellaneous operational support. The S&T consists of subject matter experts in the R&D field, the Co-Chairs of the equipment SubGroups, and the Co-Chairs of the SCC.

5.0 Execution

5.1 The CBRNE Equipment Standards Suite will be developed, promulgated, and administered as outlined above. The work will be conducted during regularly scheduled meetings of the IAB, and specially convened SubGroup sessions and by members of the SubGroups as directed by the SubGroup Chairs.

5.2 *Standards Coordination Committee* - The SCC will solicit input from the equipment SubGroup(s), consolidate input, and develop priorities for subsequent efforts, as outline in section 3.0. The SCC will develop, maintain, and publish the list of IAB adopted CBRNE protective equipment standards and develop a schedule for periodic review of these standards.

5.3 *Equipment SubGroups* - The equipment SubGroups will perform the steps outlined in section 3.0 according to a schedule developed by the Standards Coordination Committee.

5.4 *NIST/OLES* - The NIST/OLES serves as the executive agent for the SCC and implements, administers, and promulgates the CBRNE Equipment Standards Suite repository as appropriate. Additionally, NIST/OLES will publish, administer, and maintain a set of first responder CBRNE equipment guides. These guides will catalogue existing CBRNE equipment and their characteristics and will contain test data where available.

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The 2006 Standardized Equipment List (SEL)