



The InterAgency Board

2007 Annual Report

2008 Standardized Equipment List



IAB Champions



44th Civil Support Team

Arlington County (VA) Fire Department

ASTM International

Austin (TX) Police Department

Austin-Travis County (TX) Emergency Medical Services

BearingPoint

Bioterrorism Response and Special Pathogens Laboratory, Rhode Island Department of Health

Bioterrorism Response Laboratory, Massachusetts Department of Public Health

Boise (ID) Fire Department

Boston (MA) Fire Department

California Urban Search and Rescue Task Force 1

Centers for Disease Control and Prevention

Centers for Homeland Defense and Security

Chemical Biological Incident Response Force

Chicago (IL) Fire Department

City of Tulsa (OK) Security

Columbia (SC) Law Enforcement Division

Contra Costa County (CA) Office of the Sheriff

Creve Coeur (MO) Fire Protection District

Dartmouth College

Delaware Emergency Management Agency

Department of Defense, Joint Program Executive Office for Chemical and Biological Defense

Department of Defense, Research, Development and Engineering Command, Edgewood Chemical and Biological Center

Department of Homeland Security, Domestic Nuclear Detection Office

Department of Homeland Security, Federal Emergency Management Agency

Department of Homeland Security, Federal Emergency Management Agency, National Fire Academy

Department of Homeland Security, Federal Emergency Management Agency, National Preparedness Directorate

Department of Homeland Security, Federal Emergency Management Agency, Technology Support Branch

Department of Homeland Security, Science and Technology Office

Department of Homeland Security, Science and Technology Office for Interoperability and Compatibility

Department of Homeland Security, United States Customs and Border Protection

Douglas County (GA) Fire Department

Downers Grove (IL) Fire Department

Fairfax County (VA) Police Department

Fairfax County (VA) Fire and Rescue

Federal Bureau of Investigation, Hazardous Materials Response Unit

Fire Department, City of New York (NY)

George Washington University

Georgetown University Walsh School of Foreign Service

Grand Rapids (MI) Fire Department

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

Kettering Fire Department/Ohio Task Force 1, FEMA Urban Search and Rescue

Lawrence (KS) Police Department

Lawrence Livermore National Laboratory

Lewis and Clark City-County (MT) Health Department

Long Island University/Naval Postgraduate School

Los Angeles (CA) Fire Department

Los Angeles (CA) Sheriff's Department, Emergency Operations Bureau

Los Angeles County (CA) Fire Department

Louisiana State Police



Louisiana State University Health Sciences Center - Shreveport

Maryland State Police, Emergency Operations Section, Special Operations Command

Massachusetts Department of Fire Services

Miami Township (OH) Division of Fire and EMS

Miami-Dade (FL) Police Department

Montgomery County (MD) Fire & Rescue

Nashua (NH) Fire Department

National Association of Emergency Medical Technicians

National Bomb Squad Commanders Advisory Board

National Fire Protection Association

National Guard Bureau – J3

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 Interagency Fire Center

National Naval Medical Center

National Tactical Officers Association

New Castle County (DE) Department of Public Safety, Emergency Medical Services

New Orleans (LA) Police Department

New York State Police

Orange County (CA) Fire Authority

Orange County (CA) Sheriff's Department

Orlando (FL) Fire Department

Orlando (FL) Police Department, Homeland Security

Orlando (FL) Seminole County Fire Department

Phoenix (AZ) Fire Department

Placer County (CA) Health and Human Services

Responder Knowledge Base

Sacramento County (CA) Sheriff's Department

Sarasota County (FL) Fire Department

Seattle (WA) Fire Department

Seattle Fire Department/WA-TF-1 FEMA US&R

South Central (PA) Counter-Terrorism Task Force

Suffolk County (NY) Police Department

Technical Defense

Technical Support Working Group

Terrorism Research Center

Texas Task Force 1

Troy (MI) Police Department

United States Army Center for Health Promotion and Preventive Medicine

United States Army Natick Soldier RDEC

United States Capitol Police

United States Coast Guard National Strike Force

United States Department of Health and Human Services

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 Marine Corps Systems Command

United States Marshals Service

United States Occupational Safety and Health Administration

University of Connecticut

University of Montana, College of Health Professions and Bio-Medical Science

University of Toledo

University of Washington

Virginia Department of Emergency Management

Walker County (GA) Emergency Services

Yale Emergency Medicine

**The InterAgency Board (IAB) 2007 Annual Report and
the 2008 Standardized Equipment List (SEL)**

Dedication	1
IAB Champions	2-3
IAB Chair and Vice Chair Biographies	6-7
Letter from the IAB Chair	8-9
The IAB Charter	10-14
The IAB Structure and Organizational Chart	16-19
Federal Agency Coordinating Committee (FACC)	20-27
Standards Coordination Committee (SCC)	28-33
Science and Technology (S&T) Committee	34-43
Compatibility and Interoperability Committee (CIC)	44-49
Personal Protective and Operational Equipment (PP&OE) SubGroup	50-57
Interoperable Communications and Information Systems (ICIS) SubGroup	58-63
Detection and Decontamination (D&D) SubGroup	64-69
Medical SubGroup (MSG)	70-73
Training SubGroup (TSG)	74-79
Strategic Plan	80-83
Acronym List	84-85
2008 Standardized Equipment List (SEL)	87
2008 SEL Table of Contents	88-90

**Robert J. Ingram**

*Branch Chief, WMD and Disaster Preparedness
Center for Terrorism and Disaster Preparedness,
Fire Department, City of New York*

Robert Ingram is a 33-year member of the Fire Service, starting his 27th year with FDNY, assigned to the FDNY Center for Terrorism and Disaster Preparedness. He has 20 years of experience in hazardous materials response and has worked on WMD issues since 1997. Chief Ingram's experience includes training, FEMA urban search and rescue, field operations, interagency exercises, and standards development. He has been a member of the IAB since 1999 and is a member of the NFPA 472 committee and a member at large with the ASTM E-54.02 committee. He received a bachelors degree in fire and emergency management from the State University of New York, a certificate from the Fire Officers Management Institute from Columbia University Graduate School of Business and the FDNY, and a certificate from the Naval Post-Graduate Schools' Executive Leadership Program.

**Glenn P. Jirka**

*Deputy Chief of Operations
Miami Township (OH) Division of Fire and EMS*

Chief Jirka began his career as a firefighter with the Savoy (IL) Fire Department while working on his postgraduate studies in analytical chemistry at the University of Illinois. During his career, Jirka served as a Field Instructor for the University of Illinois Fire Service Institute and a Program Manager for the University of Missouri Fire Service Institute, held an appointment as Adjunct Assistant Professor of Nuclear Engineering at the University of Missouri, and served as a member of Urban Search and Rescue Team Missouri Task Force One, including a deployment to the World Trade Center disaster on September 11, 2001. Chief Jirka is the author of several journal articles and book chapters; a member of the Advance Rescue Technology Editorial Board; and a member of several professional organizations, including the NFPA Hazardous Materials Protective Clothing and Equipment Technical Committee (Chair), NFPA Fire and Emergency Services Protective Clothing and Equipment Technical Correlating Committee, International Association of Fire Chiefs, Ohio Fire Chiefs Association, International Fire Service Training Association Hazardous Materials Committee, and the Ohio Department of Homeland Security Hazardous Materials Technical Advisory Committee. Jirka was recently recognized by the Greater Montgomery County Fire Chiefs as the 2005 Fire Fighter of the Year.

In 2007, I have again had the honor of representing the membership of the IAB as the Chair. Our membership this year has remained diverse, representing the major responder disciplines, yet dynamic and committed to working together with our federal partner agencies to identify and prioritize the critical gaps in all-hazards preparedness. We have added members with expertise in urban search and rescue equipment and swift water issues and are continuing to look at public health, biological, agricultural, and PPE equipment issues.

Posted on the IAB Web site and found in this annual report are our prioritized lists of gaps in technology, standards, and interoperable and compatible areas of equipment our membership identified as important in preventing, planning, and training for and preparing to respond to all-hazard events with a special emphasis on WMD equipment issues.

These lists represent a true multidisciplinary view of critical issues in equipment today. Our five SubGroups—Interoperable Communications and Information Systems (ICIS), Decontamination and Detection (D&D), Medical, Training, and Personal Protective and Operational Equipment (PP&OE), consisting of members from multiple disciplines—identify and prioritize gaps in technology, standards, and interoperability. Our committees—Science and Technology, Standards Coordination, and Compatibility and Interoperability—refine these gaps further and present them to the entire membership for a vote to develop a final, prioritized list of gaps in equipment-related issues for first responders. The final step is to make them accessible to our federal partners to use in shaping their budget and program plans.

Our members have been active in sharing our views and concerns with their organizational affiliations. These include the international chiefs of police, fire chiefs, firefighters, bomb squad commanders, national sheriffs, emergency medical technicians, health departments, emergency managers, and urban search and rescue. We have presented our prioritized technology and standards gap lists at the 9th Annual NIJ/DHS/DOD Technology conference, the DHS Technology West conference, the Technical Support Working Group (TSWG) PPE conference, and a recent medical conference. Our ICIS local chair testified before a House of Representatives committee on communications issues that are still critical to the responder community. This outreach effort will continue in 2008 as we review and revise gap priorities, starting with an IAB presentation at the Fire Department Instructors Conference in April.

IAB leadership met with R. David Paulison, Administrator of FEMA, to offer our assistance and views in technology and equipment, and we were excited that he was receptive to them. We continue to work with FEMA officials in the very critical area of providing information to the nations' responder community. The Responder Knowledge Base, or RKB, has been a vital and successful link providing federal grant guidance and equipment testing, IAB SME recommendations, standards, and manufacturers information to more than 63,000 registered users. Funding for this Web site is being changed, and we are watching carefully to see whether there is any negative impact to the responder community.

We have seen progress on two IAB initiatives in 2007: PPE standards for law enforcement (LE) personnel and an OSHA review of outdated regulations and terminology in the hazardous material and WMD area. The National Institute for Justice (NIJ) has moved forward after two years of discussion and established a committee to develop a written standard to guide LE personnel and manufacturers in PPE issues. Working with an agreement from NFPA to use their existing chemical barrier language, this is a very aggressive committee that is showing great progress and includes several IAB members. In late 2007 OSHA put out a request for information regarding several of the CFR 1910 regulations in the Federal Register. The IAB membership submitted comments and perspectives in all of the areas posted. We wrote in our opening remarks that “taking no action on submitted comments”

should not be an option available to OSHA. Their regulations in most areas are 25 years old and lag far behind changing consensus standards. We will continue to support these actions in 2008 with comments and working group participation.

Our membership has continued to work with DHS S&T and their partners developing standards for biological detection equipment and portable explosives detection. We are looking forward to the release of the revised NFPA 472 standard in spring 2008 with the newly written “Core Operations Level” for all disciplines and will push for its implementation. Personal accountability and information management remain important priorities for the coming year, in addition to the commercialization of the next-generation fire service bunker gear, lightweight SCBA, and chemical ensembles.

2008 will have its challenges with funding concerns and the November presidential and legislative elections. These will result in more personnel changes in DHS prior to the election and sweeping changes as a direct result of them no matter which party wins. The IAB will continue our efforts to identify equipment priorities in technology and standards for the responder community and work with our federal partners.

Out of many voices, one set of priorities.

Sincerely,



Robert Ingram
Chair, InterAgency Board



The InterAgency Board 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, compatibility, and responder health and safety to prepare for, train and respond to, mitigate, and recover from any incident by identifying requirements for an all-hazards incident response with a special emphasis on chemical, biological, radiological, nuclear, or explosive (CBRNE) issues.

SCOPE

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

- 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, compatibility, and efficiency.
- Developing, maintaining, and updating a Standardized Equipment List (SEL), which is aligned with the Authorized Equipment List (AEL) and provides the responder a reference to the type of equipment required to prepare for, train and respond to, mitigate, and recover from an all-hazards incident with a special emphasis on CBRNE issues.
- Advocating for, assisting in, and promoting the development and implementation of performance criteria, standards, requirements and test protocols for AEL/SEL-listed all-hazards incident response equipment with a special emphasis on CBRNE issues.
- Encouraging the coordination of local and state response communities with established military and federal acquisition programs for procurement of AEL/SEL-listed all-hazards incident response equipment with a special emphasis on CBRNE issues.
- Sharing knowledge, expertise, and technology regarding the detection, identification, warning, protection, decontamination, response management, and medical management of all-hazards incidents among local, state, and federal response communities with a special emphasis on CBRNE issues.
- Providing a structured forum for the exchange of ideas among operational, technical, and support agencies for national preparedness to promote interoperability and compatibility among local, state, and federal response communities.
- Identifying and prioritizing all-hazards incident response equipment requirements with a special emphasis on CBRNE issues.
- Encouraging manufacturers and governmental, military, and private agencies to sponsor priority research and development projects to satisfy local, state, and federal all-hazards 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 Chairperson***—The IAB Chairperson is selected from the ranks of the local and state membership. Confirmation shall occur by a simple majority vote of the general membership present at the meeting at which the annual report is finalized. The Chairperson is elected to a two-year term starting the first meeting of odd years.

If a vacancy occurs during term of the Chairperson, an immediate election process for a new Chairperson will be initiated.

- The Vice Chairperson will act as the interim Chairperson for the duration of the meeting and election.
- The Vice Chairperson is eligible to be nominated for this position.
- If the vacancy occurs during a general meeting, nominations will be open from the floor through the end of the meeting. The nominations can include a member or members who are not present but have been contacted and will accept. During the brief-out sessions on the last day of the meeting, the Vice Chairperson will close the nominations and hold the election under the same simple majority guidance set out above. A new Chairperson will be elected for the balance of the term.
- If the vacancy occurs between general meetings, the Vice Chairperson will be notified and will serve as the acting IAB Chairperson until a new Chairperson is elected. The Acting Chairperson will send an e-mail to the membership announcing the vacancy and that nominations will be open at the beginning of the next meeting and held open for the morning session. A vote will be held before the morning session ends, and a new Chairperson elected for the balance of the term.

The Chairperson administers, organizes, and facilitates the actions of the IAB. The Chairperson provides recommendations to the Federal Agency Coordinating Committee (FACC) and direction to the SubGroup chairs.

- ***IAB Vice Chairperson***—The IAB Vice Chairperson is selected from the ranks of the local and state membership. Confirmation shall occur by a simple majority vote of the general membership present at the meeting at which the annual report is finalized. The Vice Chairperson is elected to a two-year term following the structure of the Chairperson election.
- The Vice Chairperson supports the Chairperson effort to complete the tasks of the Chairperson as identified in the above section.
- The Vice Chairperson will attend meetings that the Chairperson is unable to attend and IAB representation is valuable or necessary whenever available.
- The Vice Chairperson will chair the strategic planning group whose objectives will include providing a clear vision of future projects and monitoring the IAB mission statement.
- The Vice Chairperson will present the strategic planning group vision at the June meeting of each year.

If a vacancy occurs during term of the Vice Chairperson, the Chairperson will be notified, and the state and local chairperson of the SCC will serve as acting Vice Chairperson until a new Vice Chairperson is elected.

- The Chairperson will send an e-mail to the membership announcing the vacancy and that nominations will be open at the beginning of the next meeting and held open for the morning session. A vote will be held before the morning session ends, and a new Vice Chairperson elected for the balance of the term.

- If the vacancy occurs during a general meeting, nominations will be open from the floor through the end of the meeting. The nominations can include a member or members who are not present but have been contacted and will accept. During the brief-out sessions on the last day of the meeting, the Chairperson will close the nominations and hold the election under the same simple majority guidance set out above. A new Vice Chairperson will be elected for the balance of the term.
- **Federal Agency Coordinating Committee (FACC)—A coordination committee that provides the interface between the IAB and sponsoring federal government agencies. The FACC consists of the federal officials from contributing agencies and departments. The FACC shall:**
 - 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 Chairperson and/or Vice Chairperson 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**
 - **SubGroups**—The IAB has five SubGroups as listed below. The SubGroups are composed of subject matter experts who address domestic preparedness equipment, systems and protection issues related to a specific commodity area. The role of each subgroup is to maintain and update its portion of the SEL and to address the ways and means by which technology can support all-hazards response concerns. Additionally, the SubGroups take the lead for developing the functional requirements for equipment, identify interoperability and compatibility issues, and develop priorities for standards development within their respective commodity areas. The SubGroups identify existing standards that may be incorporated into the 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.
 - Personal Protective and Operational Equipment (PP&OE)
 - Detection and Decontamination (D&D)
 - Interoperable Communications and Information Systems (ICIS)
 - Medical (MSG)
 - Training (TSG)
 - **Committees**—The IAB has three additional Committees:
 - Standards Coordination Committee (SCC) consists of SubGroup and Committee Co-Chairs or designated representatives and subject matter experts (SMEs) from various standards development organizations. The SCC is responsible for coordinating all-hazards equipment, training, and operational standards projects of the IAB SubGroups with other organizations and enforcing authorities. As the various SubGroups of the IAB determine

minimum performance, reliability, quality, 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 their 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 requirements under internal development within the regulatory, consensus, and voluntary standards organizations; and,
 - › provide technical and nontechnical advice for improvements.
- Science and Technology (S&T) consists of SubGroup and Committee member representatives and subject matter experts in the R&D field. The mission of the STC 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 all-hazards detection, individual and collective protection, medical support, decontamination, communications systems, information technology, training, and operational support.
 - Compatibility and Interoperability Committee (CIC) consists of member representatives and SMEs who address domestic preparedness equipment, systems, and protection issues related to specific interoperability and compatibility issues.
- *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 shall be elected for two-year terms with the elections for the local/state Co-Chair and the federal Co-Chair being conducted on alternating years. The first local and state Co-Chair will have a term of one year to achieve this alternating cycle. Co-Chairs may be re-elected when their term has ended; there are no “term limits” for the Co-Chairs. 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 Chairperson and/or Vice Chairperson.
 - Complete and provide to the chair, via the support staff, all administrative reports as required by the 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 Chairperson and/or Vice Chairperson.
 - *Membership*
 - Participate in the SubGroups/Committees and lend expertise and support to the IAB Mission.
 - SubGroup/Committee membership will be limited to 20 voting members.
 - SubGroup membership may be augmented with additional SMEs, as nonvoting members, for specific projects, or with members of other SubGroups in a 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 Chairperson and Vice Chairperson.
- Individuals may serve as voting members in only one SubGroup; however, they may participate in a nonvoting status in other SubGroups.

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 Chairperson and Vice Chairperson.
- Agenda work items shall include, but not be limited to, the following:
 - o Publish an Annual Report of work.
 - o SEL data development and publication.
 - o Prioritization of equipment, standards, and training requirements.
 - o Evaluation of existing standards that link to AEL/SEL items.
 - o Establish the priority needs of the responder community regarding equipment, standards, interoperability and compatibility, and training issues and gaps.

The InterAgency Board 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 Agency 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 and Vice Chair are selected from the ranks of the local and state membership. They administer, organize, and facilitate the actions of the IAB.

State & Local Chair

Robert J. Ingram, Center for Terrorism and Disaster Preparedness, Fire Department, City of New York (FDNY)

State & Local Vice Chair

Glenn P. Jirka, Miami Township (OH) Division of Fire and Emergency Management Service (EMS)

■ 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

Les Boord, National Institute for Occupational Safety and Health (NIOSH), National Personal Protective Technology Laboratory (NPPTL)

■ Standards Coordination Committee (SCC)

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

Co-Chair

Glenn P. Jirka, Miami Township (OH) Division of Fire and Emergency Management Service (EMS)

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, Long Island University/Naval Postgraduate School

Federal Co-Chair

Gabriel Ramos, Technical Support Working Group (TSWG)

■ Compatibility and Interoperability Committee (CIC)

The Compatibility and Interoperability Committee (CIC) serves as the focal point for the coordination of interoperability and compatibility issues identified by the IAB. The CIC consolidates and prioritizes equipment, standards, training, and operational interoperability and compatibility concerns identified by the IAB SubGroups and Committees.

Co-Chair

Robert Ingram, Center for Terrorism and Disaster Preparedness, Fire Department, City of New York (FDNY)

Federal Co-Chair

Philip Mattson, National Institute of Standards and Technology (NIST), Office of Law Enforcement Standards (OLES)

■ 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

William E. Haskell III, National Institute for Occupational Safety and Health (NIOSH), National Personal Protective Technology Laboratory (NPPTL)

■ 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

Mike Tuominen, National Interagency Fire Center

■ Detection and Decontamination (D&D) SubGroup

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

Co-Chair

Steve Clendenin, Massachusetts Department of Fire Services

Federal Co-Chair

Elaine Stewart-Craig, Department of Defense, 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 nonconventional WMD attack and also preventive measures to avert victimization.

Co-Chair

Thomas Walsh, Seattle (WA) Fire Department

Federal Co-Chair

Stephen Skowronski, Centers for Disease Control and Prevention (CDC)

■ Training SubGroup (TSG)

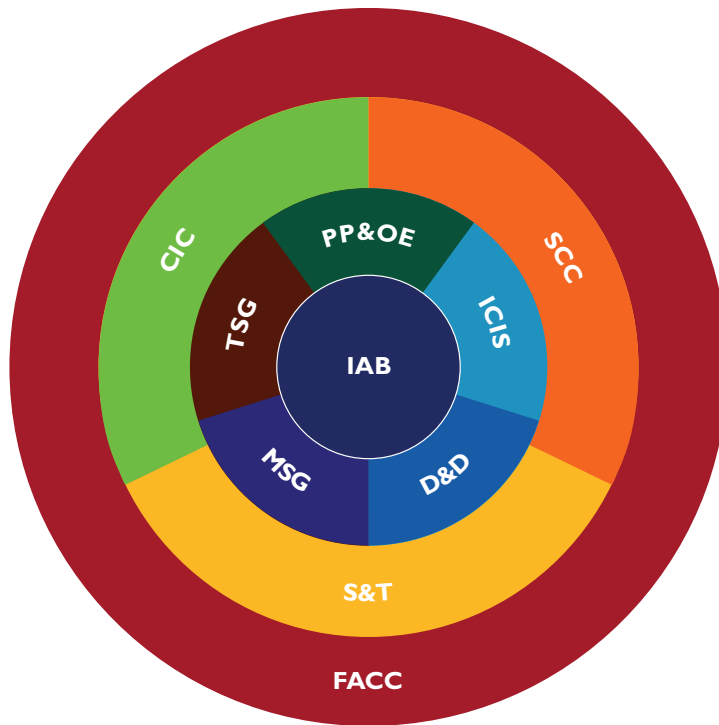
The TSG aims to improve responder mission performance through review of and input to training, doctrine, and guidance.











Co-Chair

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

Federal Co-Chair

Barbara Biehn, Department of Homeland Security, United States Customs and Border Protection



-  The InterAgency Board (IAB)
-  Federal Agency Coordinating Committee (FACC)
-  Standards Coordination Committee (SCC)
-  Science & Technology (S&T) Committee
-  Compatibility & Interoperability Committee (CIC)
-  Personal Protective & Operational Equipment (PP&OE) SubGroup
-  Interoperable Communications & Information Systems (ICIS) SubGroup
-  Detection & Decontamination (D&D) SubGroup
-  Medical SubGroup (MSG)
-  Training SubGroup (TSG)

Federal Agency Coordinating Committee (FACC)

CHAIR

Les Boord

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

Membership

Barbara Biehn

*Department of Homeland Security, United States Customs
and Border Protection*

Bert Coursey

Department of Homeland Security, Science and Technology Directorate

William Haskell

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

Kathleen Higgins

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

Pete Nacci, Ph.D.

*Department of Homeland Security, Federal Emergency
Management Agency, National Preparedness Directorate*

Michael Walter, Ph.D.

*Department of Defense, Joint Program Executive
Office for Chemical and Biological Defense*



The Federal Agency Coordinating Committee (FACC) provides the interface between the IAB Chair, Vice 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), the United States Customs and Border Protection, 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 DOD Chemical and Biological Defense Program (CBDP). Acquisition and advanced development of chemical and biological defense–related materiel is the responsibility of the Joint Program Executive Office for Chemical and Biological Defense (JPEO-CBD). The Special 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. This program includes providing those emergency response personnel responsible who for responding to CBRN events at an installations 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 IAB SubGroups and Committees.

Department of Homeland Security, Federal Emergency Management Agency, National Preparedness Directorate

The 2006 Post-Katrina Emergency Management Reform Act (PKEMRA) mandated the creation of the National Preparedness Directorate (NPD), unifying DHS' preparedness, mitigation, response, and recovery missions. It includes divisions from the former DHS Preparedness Directorate, e.g., the Office of Grants & Training, the National Exercise Program, and the National Preparedness Task Force.

- Established on April 1, 2007, NPD oversees the coordination and development of the capabilities and tools necessary to prepare for terrorist incidents and natural disasters.
- The NPD provides strategy, policy, and planning guidance to build prevention, protection, response, and recovery capabilities among all levels of government throughout the Nation
 - NPD programs leverage training courses, exercises, and technical assistance to ensure homeland security capabilities are standardized and incorporated within a common framework
 - As part of the Federal Emergency Management Agency (FEMA), NPD closely coordinates with other FEMA offices and Directorates to produce a unified approach to emergency management.

Department of Homeland Security, Science & Technology Directorate

The DHS S&T Directorate serves as the primary R&D arm of homeland security. The Directorate's mission is to improve homeland security by providing its customers—the operating components of DHS and state, local, tribal, and territorial emergency responders and officials—state-of-the-art technology that helps them accomplish their missions. DHS S&T manages an integrated program of science and technology, from basic research to product transition, guided by a risk-diverse, multitiered invested strategy based primarily on the stated needs of customers balanced with emerging technology opportunities. The Standards Office, within the Test & Evaluation/Standards division of 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

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 to partner with the U.S. 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

NIOSH conducts a range of efforts in the areas of research, information, and service. The NIOSH program portfolio focuses on relevance, quality, and impact, achieved through strong involvement of partners and stakeholders through the entire research continuum (conceiving, planning, conducting, translating, disseminating, and evaluating). The programmatic and support structures provide a foundation for staff to carry out its mission to provide national and world leadership to prevent work-related illnesses and injuries.

The NIOSH program portfolio is organized into 8 sectors representing industrial sectors and 15 cross-sector programs around adverse health outcomes, statutory programs, and global efforts. The personal protective technology (PPT) cross-sector mission is to prevent work-related illness and injury by advancing the state of knowledge and application of PPTs. PPT includes the technical methods, processes, techniques, tools, and materials that support the development and use of personal protective equipment (PPE) worn by individuals to reduce effects of their exposure to a hazard.

NPPTL was created by NIOSH in 2001 when Congress underscored the need for improved PPE and encouraged research for PPTs. NPPTL leadership serves as the Program Manager for the NIOSH PPT Cross-Sector Program. NPPTL is organized into three branches: Technology Evaluation, Technology Research, and Policy and Standards Development.

- *The Technology Evaluation Branch* performs testing, evaluation, and quality assurance checks. More than 8,500 approvals have been issued to approximately 85 approval holders at more than 100 manufacturing sites in 18 countries. There are 57 approvals for various CBRN respirators, including 20 models of CBRN SCBA respirators from four manufacturers to the 1981 NFPA edition. The objective of the respirator certification program is to ensure that workers have access to respiratory protection that meets appropriate standards. Products are evaluated for compliance with applicable provisions of standards before manufacturers are permitted to label the respirator as NIOSH-approved. The quality program conducts periodic audits of respirator performance and investigates reported problems with deployed units to ensure continued compliance of previously approved respirators.
- *The Technology Research Branch* conducts research related to respiratory protection, sensors for PPTs, human performance, and PPE ensembles, including ensembles for first responders that provide improved protection against CB agents. This research supports the development of new test methods and innovative technology for improved PPE, and to assess the performance of PPE against emerging hazards such as nanotechnology and pandemic influenza. Some of the group's projects include a facial anthropometrics program to establish respirator fit test panels, develop test headforms and respirator sizing systems, and understand the facial characteristics that affect respirator fit. In addition, the branch is working on further developing and applying mathematical models and chemical microsensors to help estimate end-of-service-life and determine optimal changeout schedules for respirator cartridges. Human physiology and ergonomic studies are conducted to assess the burden imposed by respirators and protective clothing ensembles and to develop countermeasures to that burden. Researchers are developing innovative methodology for

evaluating overall integrity of protective ensembles against aerosol hazards. Other research involves new test methods for chemical-protective clothing.

- *The Policy and Standards Branch* develops and updates standards to ensure the safety and health of respirator users. This group is working on a quality assurance module that will align the 42 CFR Part 84 standards with contemporary quality assurance practices and procedures. Criteria for total inward leakage are being established as a requirement for the certification of respirators. This branch also develops guidance documents to assist first responders in the use of equipment designed to protect against chemical, biological, radiological, and nuclear agents. The Policy and Standards branch is also involved in developing standards that will be used to protect respirator users against CBRN agents.

NPPTL applies state-of-the-art science to meet the increasingly complex occupational safety and health challenges of the 21st century. Our strategic research programs help to ensure that the development of new personal protective technologies keep 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, NIOSH served as the FACC Chair of the IAB in 2007. The FACC Chair is elected on an annual basis.

The FACC leverages ongoing federal RDT&E efforts to meet the responder requirements as identified by the IAB. The Chair and Vice 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 2007

- SEL published in Annual Report, and available for download from the IAB website. The SEL is also available interactively on the Responder Knowledge Base (RKB), which is funded by DHS FEMA.
- Produced IAB Compatibility and Interoperability Priority list through the Compatibility and Interoperability (CIC) Committee.
- Continued coordination with the RKB in aligning content and taxonomy of the AEL with the SEL on the Responder Knowledge Base (RKB).
- IAB members provided feedback and comments to DHS on the Universal Task List and Target Capabilities List.
- Increased IAB visibility with conference participation, panel and speaking engagements and booth presence at multiple conferences including the “Technologies for Critical Incident Preparedness Conference”.
- Continued development of the IAB website and list-serve capabilities creating a one stop data repository that is updated regularly by the IAB Program Office staff.
- Updated the IAB Charter to reflect Vice Chairperson position, roles and responsibilities.

- Continued management of “Strategic Planning” Committee for long term strategic planning.
- Continued work on the IAB WEBEXONE site for Standards, Science & Technology and Compatibility and Interoperability priority list management.
- 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 agency funding for continued operation of the IAB.

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



Les Boord

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

Les Boord's current position is Director, National Personal Protective Technology Laboratory at NIOSH. His background includes nearly 30 years of experience in the field of personal protective equipment. He has considerable experience with respiratory protective equipment with a major emphasis on open- and closed-circuit self-contained breathing apparatus, supplied air respirators, and open- and closed-circuit escape breathing devices. He has been involved with the design, testing, evaluation, manufacture, and marketing of breathing-protection products and other PPE in capacities ranging from design engineer to senior vice president of an international manufacturer of breathing-protection and gas-detection equipment. He holds several respirator patents and has worked in the standards development and review process with American National Standards Institute (ANSI), International Standards Organization (ISO) and NFPA. At NPPTL Les has worked as the Program Manager for developing CBRN respirator standards. In his current position he is responsible for the research, standards development, and respirator certification activities of the laboratory. He also serves as the NIOSH Program Manager for the Personal Protective Technology Cross Sector Program. Les currently participates on the IAB FACC, on the NFPA Technical Correlating Committee (TCC), and the NFPA 1981 Committee for Open-Circuit Self-Contained Breathing Apparatus for Fire and Emergency Service. Other standards work includes participation in the ISO Respirator Committee.



Standards Coordination Committee (SCC)

CO-CHAIR

Glenn Jirka
Miami Township (OH) Division of Fire and EMS

FEDERAL CO-CHAIR

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

Membership

Barbara Biehn
*Department of Homeland Security, United States Customs
and Border Protection*

Roberta Breden
*Department of Homeland Security, Federal Emergency
Management Agency, Technology Support Branch*

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

Steve Clendenin
Massachusetts Department of Fire Services

Vincent Doherty
Long Island University/Naval Postgraduate School

Stephen Graham
*United States Army Center for Health Promotion
and Preventive Medicine*

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

Robert Ingram
Fire Department, City of New York (NY)

Christopher Lombard
Seattle (WA) Fire Department

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

Gabriel Ramos
Technical Support Working Group

Stephen Skowronski
Centers for Disease Control and Prevention

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

Debra Stoe
National Institute of Justice

Mike Tuominen
National Interagency Fire Center

Thomas Walsh
Seattle (WA) Fire Department

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

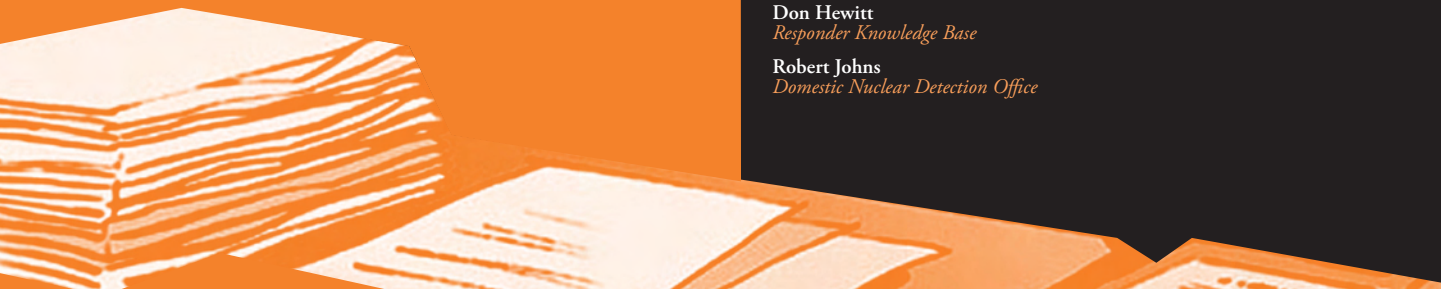
Douglas Wolfe
Sarasota County (FL) Fire Department

Subject Matter Experts

Timothy Brooke
ASTM International

Don Hewitt
Responder Knowledge Base

Robert Johns
Domestic Nuclear Detection Office



The mission of the SCC is to coordinate IAB equipment standards projects with those of outside organizations and enforcing authorities and with the first responder community. The objective is to promote local, state, and federal preparedness for responding to all-hazards incidents, especially those involving CBRNE issues. By focusing the nation's resources and expertise in a common effort to establish minimum performance standards to which critical equipment can be tested, certified, and evaluated, the SCC helps to provide first responders with objective guidance for making informed decisions regarding the purchase and proper use of that equipment. As a result, both first responders and the citizens they serve can have greater confidence in the technologies that their lives depend on.

Membership

The SCC includes representatives from federal and private standards-development organizations, as well as the co-chairs of the IAB SubGroups and Committees. NIST/OLES serves as the SCC's executive agent and is charged with administering, maintaining, and promulgating the CBRNE equipment standards identified for development or adopted by the IAB.

Roles and Functions

The SCC supports and coordinates the SubGroups' efforts to identify and meet standards requirements within the first responder community. Specifically, the SubGroups identify existing standards that must be modified and areas in which new standards must be developed, and the SCC assists with the following:

- Identifying gaps in the existing body of standards
- Prioritizing standards projects based on first responder needs
- Advocating for minimum performance, reliability, and quality requirements for needed standards
- Incorporating appropriate minimum performance requirements into existing standards developed by regulatory, consensus, and voluntary standards organizations
- Facilitating development of new standards by regulatory, consensus, and voluntary standards organizations
- Promoting the adoption of IAB-recognized standards

The SCC also tracks and reviews the progress of standards projects and serves as a feedback loop to the SubGroups by the following:

- Alerting SubGroups when contradictory requirements are proposed and facilitating reconciliation of those requirements
- Notifying SubGroups when proposed requirements contradict federal or state regulations
- Identifying existing standards, performance requirements, and test methods that could streamline development of standards for equipment listed in the SEL

- Alerting SubGroups to similar or complementary development efforts under way within regulatory, consensus, and voluntary standards organizations
- Providing advice for improving performance requirements

Partnerships

The success of the IAB's standards efforts relies on its partnerships with regulatory agencies and standards-development organizations. The SCC serves as the IAB's liaison to these partners in matters relating to equipment performance requirements, test methods, certification requirements, selection, use, and care and has initiated working relationships with many federal, nonprofit, and private standards agencies, including the following:

- ANSI
- IAFF
- IACP
- ASTM International
- DHS
- DOD
- DOE
- ECBC
- EPA
- NFPA
- NIJ
- NIOSH NPPTL
- NIST/OLES
- OSHA

IAB-Adopted and -Referenced Standards and Priorities

The SCC establishes and maintains an updated standards list that identifies standards for CBRNE and all-hazard response equipment. In addition, the SCC and S&T Committee support and coordinate the IAB's efforts to identify and to prioritize research and development (R&D) and standards requirements within the first responder community, respectively.

To do so, each Committee conducts its own rigorous survey of the IAB. After the respective gaps are identified across all IAB SubGroups and Committees, the gaps are then evaluated using a standardized survey questionnaire. The survey responses are statistically analyzed, and a rank order is established for each gap selected for the evaluation. The end products of the surveys are two lists of priorities, vetted by the IAB membership: the IAB Research and Development Priorities and the IAB Standards Development Priorities.

These priority lists are shared with the S&T community to help focus R&D needs and the standards community to help focus existing and potential standard needs. The aforementioned lists appear at the end of the SEL and include standards officially adopted by the IAB and additional standards that SEL users will find valuable for reference. The standards most recently adopted by the IAB are as follows:

- NFPA 472 (2008)

- NFPA 473 (2008)
- NFPA 1404 (2006)
- NFPA 1989
- NFPA 1600

Accomplishments

During the past year, the IAB has successfully influenced the development of priorities for standards and R&D, as well as the revision of several CBRN and all-hazards related standards, specifically the following:

- Developed the IAB Research and Development/Standards Development Priority Lists.
- SCC members continued to serve as IAB's liaison on the joint AOAC/ANSI/ASTM working groups responsible for the revision of several relevant explosive and sampling standards.
- SCC members continued to serve as IAB's liaison to the NFPA protective clothing and equipment Technical Correlating Committee and the NFPA Hazardous Materials Protective Clothing and Equipment Committee.
- Continued to promote the DHS G&T program requirement that funds are used specifically for the purchase of CBRNE equipment that meets DHS-established or adopted performance standards.

Current Initiatives

The following are among the equipment performance standards activities to which the SCC is currently contributing:

- Revision of OSHA 29 CFR 1910.120 HAZWOPER, Emergency Response to Hazardous Substance Releases
- Revision of NFPA 1991, Standard on Vapor Protective Ensembles for Hazardous Materials Emergencies
- Revision of NFPA 1992, Standard on Liquid Splash Protective Ensembles and Clothing for Hazardous Materials Emergencies
- Revision of NFPA 1994, Standard on Protective Ensembles for First Responders to CBRN Terrorism Incidents
- Revision of ASTM Standard Practices for Bulk Sample Collection and Swab Sample Collection of Visible Powders
- Revision of ASTM Chemical Weapons Detection and equipment certification standard
- Continued NIOSH, ECBC, and NIST development of standards and test procedures for all classes of CBRN respirators, including CBRN combination self-contained breathing apparatuses (SCBAs), CBRN supplied-air respirators, and closed-circuit SCBAs
- Continued TSWG efforts to develop percutaneous toxicity data for airborne challenge agents

Summary

The importance of standards in preparing for and responding to all-hazard and CBRNE threats cannot be overstated. The IAB is in the vanguard of America's effort to rapidly develop critical equipment standards, and by coordinating the activities of the IAB SubGroups and harmonizing 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.



Glenn P. Jirka

*Deputy Chief of Operations
Miami Township (OH) Division of Fire and EMS*

Chief Jirka began his career as a firefighter with the Savoy (IL) Fire Department while working on his postgraduate studies in analytical chemistry at the University of Illinois. During his career, Jirka served as a Field Instructor for the University of Illinois Fire Service Institute and a Program Manager for the University of Missouri Fire Service Institute, held an appointment as Adjunct Assistant Professor of Nuclear Engineering at the University of Missouri, and served as a member of Search and Rescue Team Missouri Task Force One Urban, including a deployment to the World Trade Center disaster on September 11, 2001. Chief Jirka is the author of several journal articles and book chapters; a member of the Advance Rescue Technology Editorial Board; and a member of several professional organizations, including the NFPA Hazardous Materials Protective Clothing and Equipment Technical Committee (Chair), NFPA Fire and Emergency Services Protective Clothing and Equipment Technical Correlating Committee, International Association of Fire Chiefs, Ohio Fire Chiefs Association, International Fire Service Training Association Hazardous Materials Committee, and the Ohio Department of Homeland Security Hazardous Materials Technical Advisory Committee. Jirka was recently recognized by the Greater Montgomery County Fire Chiefs as the 2005 Fire Fighter of the Year.



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 NIST. Under her leadership, the office grew 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 at NIST. In November 2007, Ms. Higgins accepted a position in DHS's Science & Technology Directorate as Branch Chief, Office for Interoperability and Compatibility, Command, Control & Interoperability Division. Ms. Higgins is a member of several professional organizations, including the ASTM E54 Committee on Homeland Security Applications (Chair) and the International Association of Chiefs of Police (Homeland Security Committee). Ms. Higgins also serves as the Chair of the U.S. delegation to the International Organization for Standardization's Strategic Advisory Group on Security.



Science & Technology (S&T) Committee

CO-CHAIR

Vincent J. Doherty
Long Island University/Naval Postgraduate School

FEDERAL CO-CHAIR

Gabriel Ramos
Technical Support Working Group

Membership

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

Lance Brooks
Department of Homeland Security, Science and Technology Directorate

Brett Burdick
Virginia Department of Emergency Management

Douglas Carley
Grand Rapids (MI) Fire Department

Gerard Fontana
Boston (MA) Fire Department

James Neilson
Austin (TX) Police Department

Sam Pitts
*United States Marine Corps Chemical Biological
Incident Response Force*

Neal Pollard
Georgetown University Walsh School of Foreign Service

Thomas Richardson
Seattle (WA) Fire Department

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

Debra Stoe
National Institute of Justice

Malcolm Trigg
Orlando (FL) Seminole County Fire Department

Subject Matter Experts

Kenneth Brennan
Fairfax (VA) Fairfax County Police Department

Todd Brethauer
Technical Support Working Group

Vanessa Castellanos
National Institute of Justice

John Delaney
Arlington (VA) Fire Department

Jay Hagen
*Seattle (WA) Fire Department/Department of Homeland Security,
Office of Grants and Training, Senior Fellow/Practitioner*

Beth Lancaster
United States Marine Corps Systems Command

Don Ostrowski
Troy (MI) Police Department

John J. Pennella
*Department of Homeland Security, Federal Emergency
Management Agency*

Nancy Suski
Lawrence Livermore National Laboratory

David Tafaoa
Columbia (SC) Law Enforcement Division

The 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.

Roles 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-developed 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 2007, 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.
- Designed, piloted, and completed a new Web-based survey to prioritize R&D requirements from SubGroups.
- Conducted a statistical analysis of the IAB R&D requirements survey results and delivered a Prioritized R&D Requirements List (PRL) for official publication.
- Reviewed the 2007 SEL Categories and updated the Summary of Current R&D Projects Matrix (also known as the S&T Matrix).
- Coordinated input into federal research and development agencies to leverage IAB-prioritized requirements.
- Designed a process to gather demographic information on the IAB membership to assist in describing the interagency composition, skill sets, and representation in the IAB.
- Attended and presented technical briefings at the Personal Protective Equipment (PPE) Conference 2007.

Ongoing Initiatives in 2008

The S&T Committee has established a formal process to collect and prioritize IAB R&D requirements. This work will continue in 2008 and will involve a new requirements collection survey from all IAB SubGroups, followed by statistical analysis and prioritization based on results of the survey.

The S&T Committee will continue work to develop a demographic database and analysis of the IAB membership. Initial demographic data will be gathered in 2008, and the demographic database template will be refined.

As federal agencies programs address prioritized IAB R&D requirements, the S&T Matrix will be updated to reflect the project name, managing agency/participants, and status of availability. The addition of a “Technology Readiness Level (TRL)” column to the S&T Matrix will be examined.

Work will continue to integrate the S&T Matrix as a content area of the Responder Knowledge Base allowing the information to be cross-referenced to SEL categories.

Identified Requirements

The following prioritized R&D requirements were identified by the SubGroups in 2007 as Capability Gaps that should receive special consideration by R&D initiatives:

IAB Prioritized Capability Gaps for 2007

- 1) 3-D Tracking of Personnel
- 2) Seamless Communications in Environments that Interfere with Radio Transmissions
- 3) Digital Speaker Mic/Facepiece
- 4) Secure Assured Digital Multimedia Communications System
- 5) Improved Explosive Detection Capability
- 6) Establish Dermal Exposure Standards for TICs
- 7) Hands-Free Radio Intercom
- 8) Improved Personal Alert Safety System (PASS) Audible Alarm Technology
- 9) How Clean Is Clean Enough after Decontamination
- 10) Temporary Radio Antenna Platforms
- 11) Single Detector for CWAs and TICs
- 12) Person-Worn Temperature Systems
- 13) Wireless PASS Device Performance and Test Methods
- 14) High-Volume Individual Decontamination
- 15) Improved Mass Decontamination Systems
- 16) Research Feasibility of Air-Purifying Respirator (APR) Use during Late-Stage Incendiary Incident Ops
- 17) Device for Standoff Casualty Triage
- 18) Vehicle and Aircraft Conversion Guide

The Science and Technology (S&T) Committee submits the following overview of S&T for First Responders in 2007.

Science and Technology for First Responders Applications in 2007

Science and Technology (S&T) provides the foundation for advancements that deliver new and improved capabilities to our nation's first responders. Through applied research and development, industry and national laboratories address the urgent needs of first responders facing an all-hazards threat.

The threat from chemical, biological, radiological, nuclear, and explosive (CBRNE) materials can present itself through natural disasters, technological disasters, or deliberate attacks by extremist groups. To deal with an all-hazards threat, first responders need continued improvements in personal protection, detection, decontamination, medical support, training, information technologies and communications capabilities.

In 2007, advancements in composite materials resistant to permeation by toxic industrial chemicals (TICs) made it possible for garments such as the Improved Chemical Ensemble (ICE) and the Next-Generation Fire Fighter Ensemble to become fully qualified and certified products. These ensembles offer first responders high levels of protection against chemical and biological threats and also improve overall comfort and operational functionality. Additional improvements in garment materials are needed to achieve lighter-weight, cooler ensembles with greater protection that can serve multiple functions in complex response scenarios.

Detection also experienced significant advancements in 2007. Applied research and development in distributed sensing technologies demonstrated the feasibility of fiber optics-based detection of TICs. For example, in 2007, the Distributed Intrinsic Chemical Agent Sensing Technology (DICAST®) was successfully demonstrated in a major metropolitan subway system. Open-path optical methods also proved equally successful in 2007, as demonstrated by the Totally Optical Vapor Analyzer (TOVA) system, which uses open-path infrared (IR) to rapidly detect and identify TICs. The TOVA was successfully demonstrated in two major metropolitan subway systems. Hand-portable Raman-based detection was also available in 2007 and saw widespread use among domestic first responders and the Department of Defense. Standoff detection of chemical agents remained a technical challenge. Furthermore, particle sizing, tracking, and imaging techniques as well as nanoparticle technology developments in 2007 provided novel methods for biological detection in real-time or rapid process (non-PCR based) assays.

Maintaining constant communication while operating at an incident is essential to mission success. The IAB identified communication systems for underground transportation and emergency operations as a 2006 R&D priority. Development of restricted line-of-sight (RLOS) technology in 2007 may allow currently available handheld radios to maintain communication in underground tunnels and collapsed building structures. Initial demonstration testing of the RLOS technology was completed in 2007, and the technology continues to show promise in meeting this IAB requirement.

Stimulating the advancement and growth of S&T is a technical challenge that must be accomplished to protect first responders from constantly evolving all-hazard threats. The way forward is through research and development, especially through continued collaboration among federal agencies focused on assisting the commercial transition of technology. Transition of new technology to the commercial sector is essential. Without commercialization, advanced capabilities will never move from prototype to production. A central aspect of technology transition is product certification. Improvements in test methodology and the development of new national standards are vital to enable new products to meet Authorized Equipment List (AEL) and Standardized Equipment List (SEL) criteria. In 2006, the S&T Committee identified the need to develop improved dermal exposure standards for TICs.

This research and development project was initiated in 2007 and will redefine arbitrarily set material permeation end-point criteria to more realistic values based on dermal toxicity data.

S&T provides the fuel needed to deliver advanced capabilities to our nation's first responders. Significant progress was made in 2007; however, much work remains to be done to bridge the capability gaps. Through continued collaboration, federal agencies can focus efforts and achieve these R&D priorities.

Summary of Current Research & Development by SEL Category

Project	Description	Managing Agency/ Participant(s)	Availability/ Status
SEL Category 01 - Personnel Protective Equipment			
Land Warrior Project	Integrated protection, detection, and communications ensemble for soldiers.	www.natick.army.mil	FY07 and beyond
Development of Computer-Aided Face Fit Evaluation Methods	Establish updated database of facial characteristics that can be used by respirator manufacturers to develop better products and by NIOSH for certification.	NIOSH/NPPTL	FY07
Next Generation of Turn-Out Gear for Fire Service	Protective Fire Fighter ensemble that provides integrated chem/bio protection.	www.tswg.gov DHS S&T	FY08
Drink System for Powered Air Purifying Respirator (PAPR) and Self-Contained Breathing Apparatus (SCBA)	Provides hydration capabilities while wearing a facepiece.	www.tswg.gov	Technical design available upon request from vendor.
Physiological Models and Countermeasures for PPE	Develop better methods for assessing the physiological effects of wearing protective clothing ensemble and cooling garments.	NIOSH/NPPTL	FY08
Risk-Based Protective Clothing Material Permeation Criteria	Develop realistic permeation end-point criteria and test methods for Toxic Industrial Chemicals (TICs) based on dermal toxicity data.	www.tswg.gov International Personnel Protection Inc.	FY08
CB/Smoke Escape Hood	Provides 15 minute escape capabilities from smoke and chem/bio incidents.	www.tswg.gov Essex Inc.	FY08
CB Escape Hoods	Provides 15 minute escape capabilities from chem/bio incident.	www.tswg.gov MSA Response Hood ILC Dover Scape Hood Survivair Quick Pro	Available
Body Armor Cooling System	Lightweight, low-cost, cooling capability designed to be worn under body armor.	www.tswg.gov www.technicalproductsinc.us	Available
Long Duration Tactical SCBA	A lightweight, low-cost, low-profile, long-duration closed-circuit SCBA (rebreather) for law enforcement tactical operations.	www.technicalproductsinc.us www.tswg.gov	FY08
Hazmat/USAR Ensemble	NFPA 1994 Class II rated ensemble. Form fitting, composed of durable materials that withstand urban search and rescue operations.	www.tswg.gov Gore Lion Apparel	Available
End-of-Service-Life Indicator for Respirator Cartridges	System to indicate remaining service life of chemical filter cartridges.	NIOSH/NPPTL/DoD	Ongoing development
SEL Category 02 - Explosive Device Mitigation and Remediation			
Next-Generation Bomb Suit	Improved bomb suit with integrated chemical protection.	www.tswg.gov	FY07
Vehicle-Borne IED Detection	Remote detection enhancement, X-ray based screening system for vehicles.	www.tswg.gov Quantum Magnetics	FY07
Suicide Bomber Detection	System using terahertz, millimeter wave, or non-imaging detection.	www.tswg.gov Qinetiq	FY07
Next-Generation Handheld Explosives Detector	Improved handheld explosive detector for residue, imaging, and personnel screening.	www.tswg.gov	FY07
Improved Canine Bomb Detection Performance	Improved screening and training techniques for optimal canine and handler bomb detection performance.	www.tswg.gov	FY07
Joint Robotics Program	Improved IED response robotics.	www.tswg.gov	FY07

Summary of Current Research & Development by SEL Category

Project	Description	Managing Agency/ Participant(s)	Availability/ Status
SEL Category 03 - CBRNE Operations & Search & Rescue Equipment			
Vehicle Retrofit Kit for Mass Casualty Evacuation	An easy-to-install kit that rapidly transforms a transit or school bus into an evacuation vehicle following a large-scale CBRNE incident or natural disaster.	www.tswg.gov Raytheon	FY08
Modular Portable Air Filtration Unit	CBR positive-pressure air filtration system for small rooms.	www.tswg.gov www.germfree.com	Available
3-D Personnel Locator	Device to locate personnel in three dimensions.	www.tswg.gov DHS	Prototype FY08
SEL Category 04 - Information Technology			
Sensor Web	A wireless telemetry based sensor communications system.	www.tswg.gov JPL	Available
SEL Category 04 - Information Technology (Software)			
Handheld Hazard Assessment Tools	Software tools compatible with handheld PDAs or laptops that rapidly assess chemical spill hazards.	www.tswg.gov www.aristatek.com Georgia Tech	Available
Handheld Heat Stress Assessment Tool	Software tools compatible with handheld PDAs or laptops that rapidly assess heat stress while wearing personal protective equipment.	www.tswg.gov Geomet Technologies Inc.	FY08
SEL Category 05 - Cyber Security Enhancement Equipment			
Passive Network Mapping Tool	Rapidly assess cyber network performance	www.tswg.gov	Ongoing development
Detection of Novel Attacks Against Network Servers	Intrusion detection of network servers against viruses and cyber attacks	www.tswg.gov	Ongoing development
SEL Category 06 - Interoperable Communications Equipment			
Small, Portable Voice Radio Repeater System	Hockey puck-sized radio repeater system to maintain voice communications in collapsed buildings and tunnels.	www.tswg.gov DTC Inc.	Prototype Available FY08
SEL Category 07 - Detection			
Biological Aerosol Threat Warning Detector	Handheld, low-cost UV LED detector providing real-time detection and warning (alarm) of hazardous biological aerosols.	www.tswg.gov GE Global Research	Ongoing development
Biological Aerosol Mass Spec (BAMS)	Real-time detection, identification, and warning of hazardous biological agents in complex interferent backgrounds.	www.tswg.gov LLNL	Ongoing development
Self-Indicating Radiation Dosimeter	A beta/gamma self-reading radiation dosimeter badge measuring cumulative dose for rapid assessment of radiation exposure so responders can quickly assign triage levels.	www.tswg.gov JP Labs	Available
Active LWIR (Long-Wave Infrared) Plume-Tracking System for Facility Monitoring	Spectral imaging of a toxic industrial chemicals (TIC) release in a large confined space.	www.tswg.gov	Prototype available
Facility Alarm System for Airborne Biological Toxins	A highly specific detection system using novel field asymmetric ion mobility spectrometry (FAIMS) technology to monitor indoor facilities and HVAC systems for the presence of biological toxins.	www.tswg.gov www.draper.com	Prototype available
Non-PCR Detection of Bio Agents	A gold nanoparticle- and antibody-based field-portable assay for rapid detection and identification of biological agents, which is much simpler to use and operate than conventional PCR methods.	www.tswg.gov www.nanosphere-inc.com	Prototype available

Summary of Current Research & Development by SEL Category

Project	Description	Managing Agency/ Participant(s)	Availability/ Status
SEL Category 07 - Detection - Continued			
SmallCAD	Portable, handheld detector that combines SAW and IMS detection technologies for improved sensitivity and low false alarm detection of TICs and CWAs.	www.tswg.gov www.saic.com	Available
Detection of Toxic Adulterants in Food	A compact and simple-to-use test kit that rapidly and accurately detects poisons in food through the use of color change chemistry.	www.tswg.gov Appealing Products Inc.	Available
Real-Time Radioisotope Detection and Reporting	Handheld device that rapidly detects radioisotopes and wireless capability to transmit gamma spectral data to DOE triage systems for confirmation of radiological spectral data.	www.tswg.gov www.saic.com	Prototype available
Toxic Industrial Chemical Monitor for Facility HVAC Systems	An alarm system that detects and monitors for presence of TICs & WMD agents in HVAC systems using two complementary detection technologies with a low rate of false alarms.	www.tswg.gov Avir	Available
Distributed Chemical Sensing and Transmission	A fiber optics-based distributed sensing system that rapidly detects, identifies, and alarms the presence of TICs and CWAs at below IDLH levels.	www.tswg.gov IOS	Prototype available Field testing FY08
Alpha and Beta Contamination Detection in Water	An automated batch analysis system to detect alpha and beta emitters in static and flowing potable water systems.	www.tswg.gov EPA SRNL	FY08
SEL Category 08 - Decontamination			
Mass Personnel Decontamination Protocols	A handbook containing consensus-based best practices and procedures for CBR mass decontamination.	www.tswg.gov www.cbic.apgea.army.mil	Available
Enzymatic Decontamination	Decontamination solution using enzymes to break down chemical and biological contaminants on equipment and in the environment.	www.sbccom.army.mil	Unknown
Disinfection By-Products Database	Database of gas/vapor by-products resulting from the decontamination of various building materials.	www.tswg.gov www.utexas.edu	Available
Electrostatic Decontamination System	A spray-on decontamination solution for rapid (UV light-activated) neutralization of chemical and biological agents.	www.tswg.gov www.cleanearthtech.com	Available
Low-Cost Personnel Decontamination System	A kit to quickly remove and neutralize chemical agents from skin and mucous membranes.	www.tswg.gov LLNL	Prototype available
Atmospheric Plasma Decontamination	Neutralize biological agents on sensitive items without damaging materials through the use of room temperature anti-microbial gases (plasma).	www.tswg.gov Atmospheric Glow Tech	Available
WMD Overpack Bag	Durable, puncture-resistant, impermeable, and chemically resistant overpack bag with robust sealing mechanism to prevent the spread of contamination from a chem-bio contaminated source, operational equipment, or improvised dispersion/dissemination device.	www.tswg.gov www.ilcdover.com	Available
Expedient Mitigation of a Radiological Release	Easily applied and removable adsorbent coating systems to mitigate the spread of radiological contamination.	www.tswg.gov Istron Argonne National Labs DHS (S&T)	Available
Plant and Animal Tissue Gasifier	A transportable gasification system for large scale disposal of contaminated plant material and animal carcasses.	www.tswg.gov BGP Inc. EPA USDA	Prototype testing in FY08

Summary of Current Research & Development by SEL Category

Project	Description	Managing Agency/ Participant(s)	Availability/ Status
SEL Category 08 - Decontamination - Continued			
Expedient Chemical/Biological Release Mitigation	A self-contained kit providing respiratory protection, protective gloves, adsorbent materials, and overpack containment. Used to mitigate an improvised chem-bio dissemination device.	www.tswg.gov www.battelle.org	Prototypes available
SEL Category 09 - Medical			
Bio-dosimetry Assessment Tool (BAT) Integration	Software with information resources and tools for emergency response and health care providers to help identify and manage radiation casualties.	www.tswg.gov AFRRI	Available
Ocular Scanner for Chem/Bio Agents	Portable, handheld, and automated triage tool for noninvasive assessment of acute or chronic exposure to TICs, CWAs, and toxins.	www.tswg.gov MD Biotech	Prototype testing in FY08
SEL Category 10 - Power			
Fuel Cell for Continuity of Operations	Develop and demonstrate fuel cell technology to improve the logistical sustainment of critical response operations.	www.tswg.gov	FY08
CBRNE Training Technologies			
WMD Panic Response Operations (WMD-PRO) Course	Accredited Consequence Management training course for federal, state, and local personnel covering the psychological impacts and effects of a weapon of mass destruction (WMD) incident.	www.tswg.gov Early Responders Distance Learning Center at Saint Joseph's University	Available
Food Protection and Security Training for Critical and Overseas Facilities	Modular, CD-ROM, and Web-based training program for food supply chain personnel covering food protection, supply chain traceability, risk management, communication, and International food security law.	www.tswg.gov www.cfsan.fda.gov	Preliminary course materials available
Agricultural Bioterrorism Response Training	Accredited, modular, agricultural bioterrorism response training curriculum for classroom, CD-ROM, or Web-based distance learning applications.	www.tswg.gov www.aphis.usda.gov	Preliminary course materials available mid-FY05
Low-Cost Shelter-In-Place Equipment and Training for Public Buildings	Training video that outlines specific steps and procedures to prepare an effective sheltering-in-place plan and kit for public buildings/facility managers.	www.tswg.gov	Available
Explosives Simulant Kit	Training kit to educate first responders on explosive signatures and warnings.	www.tswg.gov www.cbiac.apgea.army.mil	Available
Miscellaneous			
CB Building Protection Protocols	Software that assists engineers in the design/ retrofit of collective protection systems for buildings/critical facilities.	www.tswg.gov www.utrc.utc.com U.S. Army Corps of Engineers	Available
Nano-Material and Nanotechnology Research and Development	Application of nanotechnology materials for chemical-biological detection and protection.	www.raytheon.com	FY06



Vincent J. Doherty

*Associate Professor, Homeland Security
Management Institute
Long Island University/Naval Postgraduate School*

Vincent Doherty, is a retired, 25-year veteran of FDNY, where he was the Executive Officer of HazMat Operations and the former Company Commander of Hazardous Materials Company 1 (HazMat 1), New York City's premier hazardous materials response unit. Captain Doherty received his B.S. 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 was also a member of New York City's Federal Emergency Management Agency Urban Search and Rescue Task Force 1. Presently, Mr. Doherty is the Director of Program Outreach for the Center of Homeland Defense and Security, Naval Postgraduate School and an Associate Professor for the Homeland Security Management Institute, Long Island University.



Gabriel Ramos

*Chemical Biological Program Manager
Technical Support Working Group*

Gabriel Ramos is a program manager for TSWG, providing management and technical oversight for the execution of the CBRN countermeasures rapid R&D program. He has 20 years of experience developing and evaluating CB capabilities for DoD 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.

Compatibility *and* Interoperability *Committee (CIC)*

CO-CHAIR

Robert J. Ingram
Fire Department, City of New York (NY)

FEDERAL CO-CHAIR

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

Membership

Roberta Breden
*Department of Homeland Security, Federal Emergency
Management Agency, Technology Support Branch*

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

Timothy Fisk
Orlando (FL) Police Department, Homeland Security

Martin Hutchings
Sacramento County (CA) Sheriff's Department

Luke Klein-Berndt
*Department of Homeland Security, Science and Technology
Office for Interoperability and Compatibility*

Greg Noll
South Central (PA) Counter-Terrorism Task Force

Subject Matter Expert

Ed Bailor
United States Capitol Police (Retired)



The CIC serves as the focal point for the coordination of interoperability and compatibility issues identified by the IAB. The CIC consolidates and prioritizes equipment, standards, training, and operational interoperability and compatibility concerns identified by the IAB SubGroups and Committees. The CIC works in coordination with the SCC and S&T Committees and SubGroups to develop interoperability and compatibility requirements and identify potential solutions.

Membersip

The CIC consists of member representatives and SMEs who address domestic preparedness equipment, systems, and protection issues related to specific interoperability and compatibility issues. It includes representatives from each of the IAB SubGroups and Committees. The CIC continues to define itself as it enters its second year. The CIC Co-Chairs seek new members from outside the IAB organization as well as rely on member representatives from each of the IAB SubGroups.

Roles and Functions

The CIC complements and supports the standards development activities of the SCC and the technology development recommendations of the S&T Committee by the following:

- Coordinating and consolidating interoperability and compatibility issues identified by the SubGroups, SCC, and S&T Committees
- Identifying potential solutions in terms of standards, equipment development, training, or policy requirements to assist the responder community
- Coordinating reports from within the IAB Committees and SubGroups identifying specific interoperability and compatibility issues
- Providing input to support SCC and S&T Committee activities
- Drafting studies, white papers, and other reports on IAB interoperability and compatibility issues as needed
- Identifying existing programs that are addressing interoperability and compatibility issues
- Summarizing IAB interoperability and compatibility issues, priorities, and potential solutions in the IAB Annual Report

Accomplishments

The CIC is the newest committee in the IAB, established in 2006. It enables the IAB to fully serve as the “InterAgency Board for Equipment Standardization and Interoperability.” Having worked hard

in 2006 to develop the initial draft of a summary report of compatibility and interoperability issues raised by the IAB SubGroups, we spent 2007 refining and updating this list as more information became available. The table listing the compatibility and interoperability issues identified by the IAB is at the end of this section.

We continue to work with the following definitions for the terms “interoperable” and “compatible” when using these terms to address non-communications systems:

- **Compatibility**—Systems that work together to accomplish a common task with no modification or conversion required and that do not interfere with other systems (e.g., all hose and hydrant couplings are the same, or everybody speaks the same language)
- **Interoperability**—Use of converters, adaptors, translators, etc. to enable systems to work together to accomplish a common task (e.g., use of adapters for hose couplings or the use of a translator)

Initiatives for 2008

The CIC will continue to expand and examine compatibility and interoperability issues in the next year by the following:

- Collect and or develop working definitions for terms used by the IAB as needed
- Expand the membership of the committee through recruiting dedicated CIC members
- Gather new compatibility and interoperability issues identified by the IAB
- Develop a methodology for prioritizing compatibility and interoperability issues similar to that used by the S&T and SCC committees electronically
- Develop a matrix to indicate potential solutions for compatibility and interoperability issues in terms of standards development, technology development, guidance, etc.
- Expand on selected issues with short white papers more fully explaining the background, concerns, and potential solutions for compatibility and interoperability issues

Summary

The CIC will expand its reports and will serve as the focal point for compatibility issues for the IAB. The CIC will serve to enable the IAB to truly be the emergency response community’s voice for equipment standardization and interoperability. The following table lists the compatibility and interoperability issues identified by the IAB SubGroups in 2007:

SubGroup	Issue	Description
D&D	Common Website to Post Field Equipment Issues	Lack of an electronic site for emergency responders to post field issues and equipment failures for all agencies to have access to in real time. i.e. PASS alarm high heat failures.
D&D	How Clean is Clean?	Need across the board answer to the question.
D&D	CBRNE Threat Credibility	Parameters for differentiating suspicious vs credible threats in evaluation of unknowns.
D&D	Environmental Sampling Strategies and Evidence	Environmental Sampling Strategies and Evidence. Making sure evidence concerns are taken into consideration when writing standards on environmental sampling. Chain of custody, etc.
D&D	Standard MSDS	Standard MSDS.
D&D	Wireless Communications	Plug and play.
D&D	ASTM Sampling Standard	Issues with feasibility of ASTM sampling standard. What is bio sampling? Standard field screen method and technology.
D&D	Test Data Sharing	Local, State, Federal information access consistency (test data sharing or access, etc).
D&D	Standardized Chem/Bio Reporting	Standardized incident reporting, suspicious vs. credible.
D&D	Compatible Libraries	Raman, HazmatID need for compatible libraries. Legal issues: proprietary.
D&D	Equipment Test Results	Often CBRNE equipment (detection) is tested when they are commercially available, but there is no standard to test them against for pass/fail or at the very least comparison to other similar equipment.
D&D	Security Clearances	Security clearances are still issues for many SME emergency responders. These SME are often asked to participate on focus groups but are not able to view all of the data.
ICIS	On-Scene Wireless Compatibility and Interoperability	There is an increasing trend toward the use of wireless transmission for both voice and data communication at the incident scene, as well as for remote control of robotic devices and “reachback” detector technology. This trend is now expanding to encompass the individual responder, and includes technology such as hands free communication, wireless Personal Alert Safety System (PASS) technology, 3D locators, and sensor systems such as individual temperature or detection sensors that utilize Bluetooth technology. Problems with conflicting robot commands have already been demonstrated. Study is urgently needed to determine the impact of the various RF sources at an incident site on the increasing number of wireless devices, particularly those pertinent to individual responder life safety. Finally, this issue should also be examined from the standpoint of vulnerability to deliberate interference such as might be initiated by a terrorist seeking to disrupt response or incapacitate responders.
Medical	Uniform Health and Medical Surveillance	No nationwide interjurisdictional standards for sharing data sets in a timely manner for early detection of exposure to agents that cause disease or illness beyond normal parameters. (Consistent with HSPD-21).
Medical	Medical Credentialing	Standardization by skill set or professional designation.
Medical	Standardized Guidance on Purchasing Equipment	No universal guidance for all disciplines eligible for purchasing equipment and supplies with federal funds listed on the AEL (for example, Department of Health and Human Services operational divisions that provide substantial funding for equipment do not use the guidance/infrastructure developed and used by Department of Homeland Security (AEL, RKB, etc.) or the information/recommendations in the SEL)
Medical	Standardization of Batteries	From radios to all universal medical equipment.
PP&OE	Compatability of SWAT Body Armor with SCBA	Current ballistic tactical vests hinder wearing the harness for SCBA.

SubGroup	Issue	Description
PP&OE	Sight/Target Aquisition While Wearing respiratory PPE	Law enforcement has difficulty aquiring proper sight alignment/sight picture and target aquisition while using weapons due to distortion from facepiece and standoff (inability to acquire proper stock/cheek weld).
PP&OE	Interoperability of Wireless PASS/ Accountability Systems	Many different units show up, Personal Alert Safety System (PASS) and/or accountability system must pick up all groups during operation. Current PASS systems are not designed to be interoperable because there is no standard for their development.
PP&OE	Dexterity Issues with Gloves	Inability to perform job functions while wearing cumberson PPE gloves, i.e .weapons manipulation, bomb render-safe procedures, HAZMAT detection equipment manipulation, evidence collection, medical triage, etc.
PP&OE	SCBA Facepiece/Bombsuit Facepiece Interoperability	SCBA facepiece/Bombsuit facepiece interoperability. Profile of the facepiece will not fit under Med-Eng, currently only Drager is compatible. Bomb squads are only able to wear ONE SCBA, Drager.
PP&OE	Helmet Interoperability with Respiratory PPE	Respirator impedes correct fit/usage of all helmets (firefighting, ballistic, USAR).
PP&OE	Underwater/Open Water Communications (Wireless) Limitations	Limited comm with base station unless hardwired. Need wired equivilant wireless devices. Hardwire limits operations.
PP&OE	Compatibility of Wireless Systems	All wireless systems (heads up display (HUD) on SCBA) during operations must be compatible and interoperable to eliminate interference and crosstalk.
Training	Safety Considerations	Review various relevant authorities (NIMS, TCL, OSHA, etc.) for safety considerations and establish consistency in language. Crosswalk safety standards. Define roles, responsibilities, and professional competencies of an all-hazards safety officer. Identify a standard for Law Enforcement Safety Officer.
Training	Competency-Based Performance Standards	Identify competency-based performance standards based on demonstrated knowledge, skills, and abilities.
Training	Information Sharing	Information sharing among various working groups. Identify a mechanism to collaborate with various working groups (ex: between NIMS resource typing working group and IAB).
Training	NFPA 472/OSHA 1910.120	NFPA 472/OSHA 1910.120 - crosswalk NFPA 470 series, HAZWOPER and other federal related standards, provide layman's interpretation and equipment implications to drive consistency of the application of standards.
Training	Interoperability	Use of SWAT/HAZMAT/EOD/EMS PPE during a single event. Impact on next-generation PPE?
Training	NIMS Resource Typing Definitions	Revisit initial 120 NIMS resource typing definitions (example: SWAT-fit in with HAZMAT EOD definition.) Conduct NFPA 1670/1006/470 series crosswalk. Highlight impact of typing changes on PPE, equipment, and professional qualifications.



Robert J. Ingram

*Branch Chief, WMD and Disaster Preparedness
Center for Terrorism and Disaster Preparedness,
Fire Department, City of New York*

Robert Ingram is a 33-year member of the Fire Service, starting his 27th year with FDNY, assigned to the FDNY Center for Terrorism and Disaster Preparedness. He has 20 years of experience in hazardous materials response and has worked on WMD issues since 1997. Chief Ingram's experience includes training, FEMA urban search and rescue, field operations, inter-agency exercises, and standards development. He has been a member of the IAB since 1999 and is a member of the NFPA 472 committee and a member at large with the ASTM E-54.02 committee. He received a bachelors degree in fire and emergency management from the State University of New York, a certificate from the Fire Officers Management Institute from Columbia University Graduate School of Business and the FDNY, and a certificate from the Naval Post-Graduate Schools' Executive Leadership Program.



Philip J. Mattson

*Program Manager, Critical Incident Technologies
Office of Law Enforcement Standards
National Institute of Standards and Technology*

In addition to serving as the Program Manager for Critical Incident Technologies at NIST/OLES, Philip Mattson serves on detail to the DHS Standards Office at the Science and Technology Directorate. Mr. Mattson manages programs with multiagency funding to facilitate the development of a national suite of standards for CBRNE protective and operational equipment for the emergency response community. He is the Federal Co-Chair of the IAB CIC and a member of the ASTM E54 Committee on Homeland Security Applications, chairs the E54.08 Operational Equipment Subcommittee, and is a member of the ANSI Homeland Security Standards Panel and the NIJ Personal Protective Equipment Technology Working Group. At DHS Mr. Mattson serves as the Program Manager for Standards Identification and Development in the Office of Standards and directly manages a 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 Post-Graduate 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.

Personal Protective & Operational Equipment (PPE&OE) SubGroup



CO-CHAIR

Douglas E. Wolfe
Sarasota County (FL) Fire Department

FEDERAL CO-CHAIR

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

Membership

Eric Ashburn
Walker County (GA) Emergency Services

Armando Bevelacqua
Orlando (FL) Fire Department

Tim Dorsey
Creve Coeur (MO) Fire Protection District

Richard Duffy
International Association of Fire Fighters

Lt. John Hahn
United States Coast Guard National Strike Force

John Hancock
United States Department of Veterans Affairs

Chris Hays
National Tactical Officers Association

Martin Hutchings
Sacramento County (CA) Sheriff's Department

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

Joel Leson
International Association of Chiefs of Police

Jeff Marcus
Los Angeles (CA) Fire Department

David McBath
New York State Police

Rick Reddy
Boise (ID) Fire Department

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

Axel Rodriguez
United States Army Natick Soldier RDEC

Mark Saxelby
California Urban Search and Rescue Task Force 1

Bruce Teele
National Fire Protection Association

Ron Watson
Los Angeles County (CA) Fire Department

Forest Willis
United States Coast Guard, National Strike Force

Wayne Yoder
*Department of Homeland Security,
Federal Emergency Management Agency,
National Fire Academy*

Subject Matter Experts

Glenn Jirka
*Miami Township (Ohio)
Division of Fire and EMS*

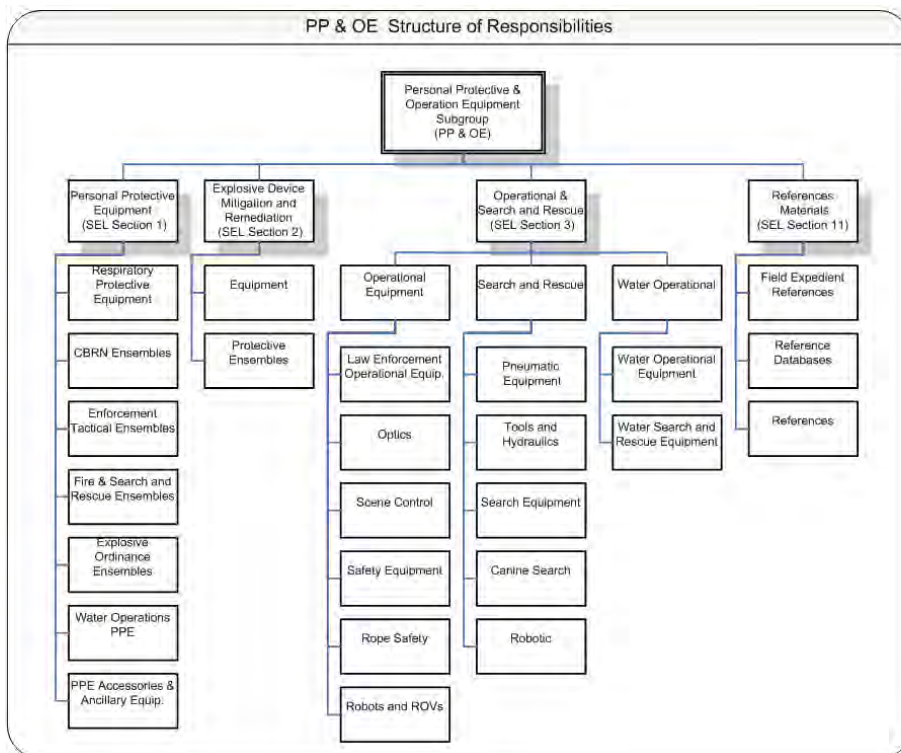
Hans Strand
*National Tactical Officers
Association*

Jeffrey Stull
*International Personnel
Protection*

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

Roles and Functions

The PP&OE SubGroup addresses the personal protection and operational equipment needs of responders to support their operations at CBRN or other all-hazards incidents. To develop recommendations for protective equipment, the PP&OE SubGroup conducts a gap assessment of existing and forthcoming standards. The SubGroup recommends that the selection of personal protective ensembles be based on a risk-based model, considering both the hazard to be encountered (hazard type and physical state) and the job function to be performed (probability of exposure or contact). If a gap is identified during the assessment process, recommendations are forwarded to



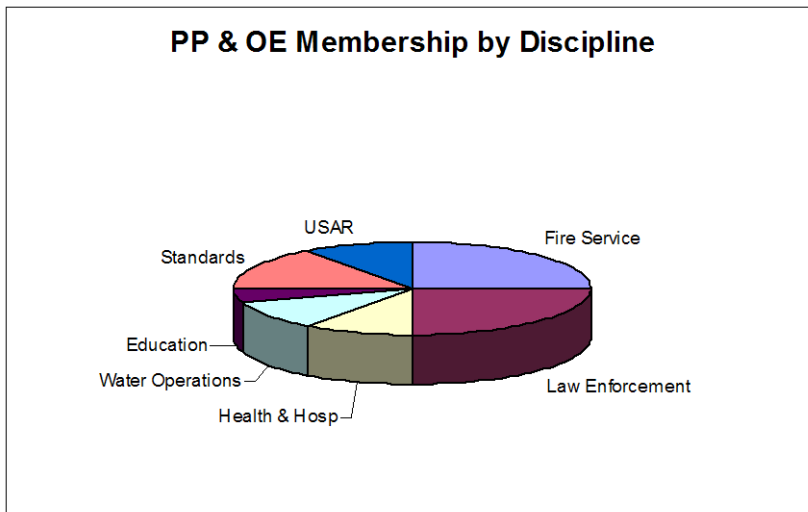
the IAB's Standards Coordinating Committee (SCC) to develop a mechanism to fill any identified standards-related issues.

In addition to PPE, the PP&OE SubGroup supports the development of explosive device mitigation and remediation, operational, and search and rescue equipment; and reference materials, performance criteria, and standards.

Membership

The PP&OE SubGroup includes a wide range of subject matter experts (SMEs) from emergency response organizations, federal partners, and standards development organizations. This synergistic membership creates the ability to push forward initiatives for systemwide improvements and standards development. The current composition of the SubGroup is as follows:

- Response Organizations 70%—Representing the fire service, law enforcement, emergency medical service, medical first receivers, hazardous device operations, hazardous materials, search and rescue, and water operations.
- Federal Partners 30%—Representing National Institute for Occupational Safety and Health (NIOSH), Department of Veterans Affairs (VA), U.S. Coast Guard (USCG), National Fire Academy, Department of Defense (DOD), and the U.S. Army Center for Health Promotion and Preventive Medicine (CHPPM).



The PP&OE SubGroup has wide representation from both labor and professional organizations such as the National Fire Protection Association (NFPA), ASTM International, International Association of Fire Fighters (IAFF), International Association of Chiefs of Police (IACP), National Tactical Officers Associations (NTOA), and the National Bomb Squad Commander's Advisory Board (NBSCAB). These organizations have been provided permanent assigned seats to the PP&OE SubGroup.

This membership enhances partnerships among 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 continue to be leveraged and, in some cases, fast-tracked for the benefit of the emergency response and public safety community. Bringing all the stakeholders to the table in a cooperative manner has been, and will continue to be, essential to the success of this SubGroup.

Initiatives and Progress

In 2007 the PP&OE SubGroup focused on these major strategic initiatives:

- Continued to make revisions to the PPE and Operational Equipment Sections of the Standard Equipment List working closely with the Responder Knowledge Base (RKB) staff.
- Included personal protective and operational equipment needed for operations in water environments. Brought about by the changing missions in port security operations and recognized impacts of situations such as urban flooding events, the PP&OE subgroup brought in membership to specifically address the water environment response. Equipment was listed for surface and subsurface environments involving marine operations, open water, contaminated water, and swift water hazards.
- Assigned permanent member seats to professional organizations such as the IAFF, IACP, NTOA, and NBSCAB. This arrangement enables those organizations to rapidly fill vacancies and ensure their continued input to PP&OE SubGroup.
- Continued to advocate the development of performance criteria and development of standards for law enforcement PPE for protection against CBRN hazards and provide PP&OE representation to the organizations developing those standards.
- Continued to advocate the development of data to provide guidance relating to effects of dermal exposure values necessary to aid in the proper design and selection of CBRN protective ensembles.
- Supported the IAB Training SubGroup's development of educational and training considerations for all listed items for inclusion in the SEL by vetting the recommended training standards for 420 PPE line items.
- Provided input for the Occupational Safety and Health Administration (OSHA) Emergency Response and Preparedness Request for Information concerning the need to update current OSHA general industry standards (29 CFR 1910). It is OSHA's desire to reflect major improvements in health and safety practices that have already been accepted by the emergency response community and incorporated into consensus standards. It is the PP&OE SubGroup's hope that standards, some of which are decades old, will be updated to reflect the currently existing standard of care.
- Continued to support improvements in existing performance requirements and test methods for measuring chemical resistance of ensemble materials and next generation respirators against chemical warfare agents (CWAs) and toxic industrial chemicals (TICs).

Standards Under Development or Revision

The PP&OE SubGroup encourages users of the SEL to monitor the activities of various standards development organizations such as ASTM, NFPA, and NIJ at their respective Web sites.

Currently being developed by the NFPA is:

- NFPA 1801 Standard on Thermal Imagers for the Fire Service. The first edition is planned for a 2009 release.

In 2007, the PP&OE SubGroup recommended to the IAB the adoption of:

- NFPA 1670 Standard on Operations and Training for Technical Search and Rescue Incident, 2004 Edition
- NFPA 1006 Standard for Rescue Technician Professional Qualifications, 2003 Edition (Next revision cycle 2007)

Standards Gaps Identified by the PP&OE SubGroup

During 2007, PP&OE SubGroup identified the following priorities for standards development or revisions:

Law Enforcement PPE Standards	PP&OE continued to emphasize the urgency for the development of CBRN performance criteria for ensembles, boots, and gloves specific to law enforcement missions. These standards must take into consideration compatibility of ensemble elements with officers duty/tactical gear and respiratory protective equipment. It must consider differences in performance criteria for mission roles such as those defined in the IAB SEL.
Dermal Exposure Standards for TICs	Requested standards for dermal exposure to Toxic Industrial Chemicals (TICs). The proper selection of personal protective ensemble is related to dosage based dermal exposure limits which currently do not exist. Realistic values need to be developed to allow for the subsequent development of newer PPE technologies that are lighter weight, less stressful and that can be worn for longer durations. Establishment of dermal exposure limits based upon cumulative dosage is essential to the fielding of new PPE technologies.
Combination Respiratory Protective Equipment	Establish respiratory protective CBRN performance standards, test methods, and certification process for combination units such as APR/SCBA and PAPR/SCBA.
CBRN PAPR Standard for Moderate and High Flow Rate Operations	A standard is required for CBRN Powered Air-Purifying Respirators (PAPRs) used in moderate and high flow rate operations. Current industrial PAPR systems may not allow for adequate flow rates during high exertion activity typical of emergency response personnel.
Respiratory Protective Devices for Infectious Diseases	Refine guidance is needed for the selection of correct Respiratory Protective Devices (RPD) for protection against infectious diseases. Current recommendations for respirators against infectious disease need to be updated. Responders need user relevant adequate guidance on protection during operations in a pandemic environment.
Support Development of NFPA 1952 Standard on Surface Water Operations Protective Clothing and Equipment	PP&OE actively supports current development efforts for NFPA 1952 for the design, performance, and test methods for protective ensembles for contaminated/uncontaminated water operations.
PPE for Underwater Operations	A standard for underwater personal protective equipment is needed. There is a specific need for this type of standard, particularly for underwater port security and contaminated water diving operations.

Future and Continued Initiatives

- Continue to expand the PP&OE SubGroup's efforts in developing an all-hazards approach to its SEL topic matter.
- Ensure that the development of all standards relating to the performance and testing of PPE include mandatory requirements for independent third-party testing and certification of products and equipment.
- Continue to advocate for PPE standards for the law enforcement community that maintain necessary hazards-based levels of CBRN protection while, at the same time, meeting their specific mission-related requirements for fit, form, and function. The National Institute of Justice (NIJ) Special Technical Committee is currently developing an NIJ Standard on CBRN Protective Ensembles for Law Enforcement.
- Continue to serve as the primary emergency response community advocate throughout the development of the national personal protective equipment roadmap.
- Advocate the development of improved Personal Alert Safety System (PASS) that incorporates wireless 3-D personal accountability and tracking capabilities.
- PP&OE believes that there is a need for body-worn environmental temperature physiological status monitoring sensors to provide the responder and safety officer with the ability to proactively identify responder health risks.
- There is a need for respiratory protective equipment performance requirements and standards for use during firefighting overhaul operations. Research is required to establish guidelines for monitoring and decision making that would identify the critical combustion by-products and permissible levels as well as common hazards, together with specific criteria for transitioning from SCBA to APR or PAPR.
- Research is needed to determine the possibility for alternative respiratory protective equipment during wildland firefighting operations. Currently, no standards exist for respiratory protective equipment for use during wildland firefighting operations. Most wildland firefighting operations are conducted without any respiratory protective equipment or with equipment that is not tested or certified. Research and subsequent standards development are needed to offer protection to personnel without hindering their ability to effectively perform in such environments.
- Performance criteria are needed for firefighter emergency escape devices for use when SCBA breathing air is depleted. Several items are currently being sold that are not tested and certified for actual fire inhalation hazards. Proper breathing air management principles would dictate that personnel never place themselves into a position of low air operations. However, lost or entrapped firefighters may have no option but to use such an emergency device. Therefore, a performance standard needs to be developed.
- Research and appropriate action are needed with regard to the personal protection and operational equipment needs for crop and animal disease outbreak emergency response. The SubGroup will also help to coordinate the contents of SEL Section 16.



Douglas E. Wolfe

*Captain, Special Operations Coordinator
Sarasota County (FL) Fire Department*

Douglas Wolfe has served in the hazardous materials emergency response field for 24 years with Sarasota County Fire Department and coordinates their Special Operations and Domestic Security programs. During his tenure in the field Douglas has instructed on a national basis for numerous organizations including the National Fire Academy where he has served as Subject Matter Expert and co-authored numerous programs including “Advanced Life Support Response to Hazardous Materials Incidents”, “EMS: Special Operations”, “Emergency Response to Terrorism: Tactical Considerations (ERT:TC)”, “Chemistry for Emergency Response”. In addition to the IAB, Douglas serves on the Florida SERC and Hazardous Materials Training Task Force as well as the Florida State Working Group for Domestic Security Equipment Subcommittee.



William Haskell

*National Institute for Occupational Safety and Health
National Personal Protective Technology Laboratory
Centers for Disease Control and Prevention*

Bill Haskell is a member for the Policy & Standards Branch at the NIOSH National Personal Protective Technology Laboratory (NPPTL). NPPTL was established in 2001 by congressional directive to provide world leadership for the prevention and reduction of occupational disease, injury, and death for workers who rely on personal protective technologies. The NPPTL Mission is to prevent work-related illness and injury by ensuring the development, certification, deployment, and use of PPE and fully integrated, intelligent ensembles. Mr. Haskell serves on the NFPA Technical Correlating Committee for Fire and Emergency Services Protective Clothing and Equipment and NFPA technical committees for hazard materials, electronic safety, structural/proximity, special operations, and emergency medical service protective clothing and equipment. Mr. Haskell is a member of the ASTM International F23 Protective Clothing and E54 Homeland Security Committees and the IACP Homeland Security Committee. Prior to joining NPPTL he worked for 24 years at the Army Research Laboratory and the Army Soldier Systems Center. Mr. Haskell holds a B.S. in civil engineering and an M.S. in plastics engineering from the University of Massachusetts at Lowell.



Interoperable & Communications Information Systems (ICIS) SubGroup



CO-CHAIR

Chris Lombard
Seattle (WA) Fire Department

FEDERAL CO-CHAIR

Mike Tuominen
National Interagency Fire Center

Membership

Don Bowers
Fairfax County (VA) Fire and Rescue

Ron Burch
Phoenix (AZ) Fire Department

Amy Donahue, PhD
University of Connecticut

Leonard Edling
Chicago (IL) Fire Department

Mark Hogan
City of Tulsa (OK) Security

Luke Klein-Berndt
*Department of Homeland Security, Science and Technology
Office for Interoperability and Compatibility*

Susan McGrath, PhD
Dartmouth College

Robert McKee
Texas Task Force 1

Mark Morrison
Louisiana State Police

George Perera
Miami-Dade (FL) Police Department

Wes Rogers
Fairfax County (VA) Fire and Rescue

John Sullivan
Los Angeles Sheriffs Department, Emergency Operations Bureau

David Tritch
*Kettering Fire Department/Ohio Task Force 1,
FEMA Urban Search and Rescue*

Mark Willow
New Orleans (LA) Police Department

Subject Matter Experts

Leif Anderson
Phoenix (AZ) Fire Department

Allen Ashbolt
PEP/PM, Marine Corps Systems Command

Joseph Booth
Louisiana State Police

Matt Devost
Technical Defense

John Freeburger
Montgomery County (MD) Fire & Rescue

Don Hewitt
Responder Knowledge Base

Walt Kaplan
Chemical Biological Incident Response Force Training Manager

Leslie Anne Levy
Department of Homeland Security

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

Jeff Rodrigues
BearingPoint

LeRoy Sisley
Seattle Fire Department/WA-TF-1 FEMA US&R

William Snelson
United States Marshals Service

On behalf of the ICIS SubGroup, Co-Chairs Mike and Chris would like to welcome you to the sections of this year's IAB annual report that pertain to communications related technologies, software, processes and more. We hope you find the information offered in these sections helpful and informative. As the old axiom states, there are few things more consistent than change itself and this could not be more true than for the activities of the ICIS SubGroup and the content under their purview.

The mission of the ICIS SubGroup is to identify and make recommendations on a model suite of practices, capabilities, applications, and equipment that provide for secure and assured communication and information systems.

Roles and Functions

The primary means by which the ICIS SubGroup accomplishes its mission is through the quick, efficient, and beneficial exchange of information, whether voice or data (i.e. communications). In after-action reports for major incidents and drills throughout the nation, communications continues to be listed among the top issues needing more work. “Interoperability” (or “interoperable communications”) continues to be one of the most-used buzzwords in the realm of emergency response, on all levels.

Perhaps the greatest strength of the IAB is the emphasis on the practitioner, with the majority of the membership being current first responders from EMS, fire, and law enforcement agencies. The standards and equipment guides are developed by first responders, for first responders. In this work, responder members are fortunate to have the support and input from the rest of the membership, representatives from state/federal government, academia, industry, and others. While working with the other IAB SubGroups, the ICIS SubGroup's role has always been one of developing a common or standardized operating picture for all the essential components of an emergency incident response.

The unique quality of our effort is providing the information from the responder's perspective. The ICIS SubGroup acknowledges there are many other groups focusing on improving incident communications. We believe it is our emphasis on the involvement of actual responders that makes us unique. Some of these groups are tasked with developing long-term solutions, some are developing wide-reaching solutions, and some are mission-specific or discipline-specific. Because of our ability to speak to the end-user's perspective, members of the ICIS SubGroup provide expert advice and guidance to many of these other organizations.

Another significant difference between the ICIS SubGroup (and the IAB as a whole) and the numerous groups working to improve communications for the emergency responder community is that our membership eliminates the “middle man.” As mentioned above, the ICIS SubGroup is able to put emergency responders (current EMTs, firefighters, and law enforcement officers) in direct contact with those federal partners trying to provide assistance. It is this direct link that affords a timeliness and relevance that cannot be derived through meeting with delegates of agencies/entities that represent still larger groups of first responders. It is sometimes said, if you want to know what the needs

and concerns of emergency responders are, talk to them! The IAB facilitates this communication. The ICIS SubGroup continues to convey immediate, short-term communications-related needs from the responder community to the federal partners. Again, it is not our intent to circumvent representative agencies; in fact, many IAB members also participate in the representative organizations (IAFF, Association of Public Safety Communications Officials International [APCO], International Association of Fire Chiefs, IACP, etc.). This relationship serves to confirm or clarify to the federal partners those needs being expressed by the representative agencies.

The two-way information flow is beneficial to all involved. Through this process, our federal partners are able to rapidly obtain feedback essential to improving the safety and security of our nation. First responders are rewarded through the timely dissemination of information regarding such issues as grant programs, technology trends, resources, ongoing research and development. It is our goal to provide yet another means to get information out to those who may not otherwise receive it.

The ICIS SubGroup continues to emphasize standardization of equipment and methods used for communications by first responders, including the following vital areas:

- CAD-to-CAD interfaces
- Records management systems (RMS)-to-RMS interfaces
- CAD-to-RMS interfaces
- Radio interoperability (P-25)
- Skills and training of communications support personnel (Communications Unit Leader, Communications Unit Technician, etc.)
- Cybersecurity
- Intelligence sharing and exchange

SubGroup Accomplishments

Among our accomplishments continues to be the referral of current, knowledgeable public safety experts to other groups that are themselves making significant progress in communications related endeavors (i.e., engaging the right people in the right efforts). In addition to the ongoing information exchange efforts (SEL maintenance, RKB-related work, etc.), our SubGroup continues to focus on several significant areas of work:

- The SubGroup began working with various governmental and nongovernmental agencies to better define standards and criteria pertaining to those individuals responsible for supporting emergency incident communications.
- We continued our work with NIST on the roll-out of Project 25 standards.
- For Computer Aided Dispatch (CAD)-to-CAD interfaces, the SubGroup has been involved in development of the emerging National Information Exchange Model (NIEM) framework currently being developed as a partnership between the Department of Justice and DHS.
- We began efforts to improve the collection, analysis, and dissemination of intelligence/information related to public safety (EMS, fire and law enforcement) agencies, further improving their collective ability to protect U.S. citizens efficiently and safely.

Communications Unit Leader

Through a series of meetings, the ICIS SubGroup has been working with DHS (OIC, OEC, and FEMA), and other national organizations, in an effort to standardize training and certification for emergency incident communications support personnel. The Communications Unit Leader (COML) is the first such position for which a training curriculum has been developed. The COML working

group started with the wildland community's COML and began making modifications toward including other operating environments and other responder disciplines.

The group is nearing completion of its work. Once finished, it will be provided to FEMA and will be disseminated through their Web site. The goal is to have the course, the exam, and the certification available to first responders via the Internet. The first two planned courses will be for a Type V and Type IV (following NRP incident typing guidelines) Communications Unit Leader.

Project 25

The ICIS SubGroup has been working with SAFECOM and NIST on the incorporation of finalized P-25 standards, from the overall suite, into the IAB's Standardized Equipment List and into DHS's Authorized Equipment List.

To assist responders with future purchases of P-25 compliant communications equipment, ICIS SubGroup members have been working with NIST on the development of a decision matrix tool. When completed, the tool will enable users to determine the applicable P-25 standards based on the equipment they are adding to or wish to purchase.

CAD-to-CAD Interface

Another area where ICIS SubGroup members have been active involves the exchange of emergency incident-related data between disparate computer systems. For some time, emergency responders have been trying to develop standards that would better enable their respective dispatching centers to exchange data-specific information. One such effort began as the Association of Public-Safety Communications Officials (APCO) Project-36. About the same time, DHS sponsored the efforts of another group working on data exchange standards, the Organization for the Advancement of Structured Information Standards (OASIS), to expand the Common Alerting Protocol (CAP) standard to include additional emergency related messages. The expanded standard became known as Emergency Data Exchange Language (EDXL). This effort began before the National Information Exchange Model (NIEM), also sponsored by DHS.

NIEM started with the Global Justice XML Data Model (GJXDM) standard and then began adopting additional standards in an effort to provide an overarching message development process and common data model. Since then, NIEM has added the EDXL data elements to its data model, but issues have arisen out of the NIEM implementation of EDXL. Where EDXL has gone so far as to define "messages," NIEM focuses on the data model and allows implementation specific messages. This approach does not work with other EDXL implementations.

While the GJXDM is close to being an accepted standard, EDXL and NIEM are continuing to evolve. The intent of NIEM was to provide core components that cross domains and adopt domain-specific standards for domain-specific elements and provide a common methodology for developing new interfaces and messages. ICIS SubGroup members continue to be involved in these efforts.

Public Safety Information Management

In the past several months, some of the issues surrounding Public Safety Intelligence have received significant negative press. Concerns relate to the potential for civil right violations, invasion of individuals' privacy, and abuse or misuse of stored information. An important differentiation, and one that is not being made by the media, is the differences between "general" intelligence (e.g., information stored regarding specific habits and behaviors of individuals) and "operational" intelligence (e.g., situational awareness and decision support regarding situations and specific threats). It is this second type of intelligence that the public safety community is exploring to better do their respective jobs. The ICIS SubGroup made a considerable effort at better clarifying these differences and began to disseminate information regarding operational intelligence to the public safety community.

The SubGroup participated in an information summit this past December, with the support of Dartmouth College and the Los Angeles Sheriff's Department. Presenters offered updates on a wide range of disciplines and on a wide range of subjects. Talks included information on open-source intelligence, data mining, supporting technologies, current trends, and more.

The ICIS SubGroup hopes to work towards better exchange of useful information between public safety agencies of different disciplines and from different levels of government.



Christopher Lombard

*Communications Special Operations
Seattle (WA) Fire Department*

Christopher Lombard is a lieutenant with the Seattle Fire Department. In addition to working both in the operations division and as an emergency dispatcher, he manages a variety of projects, including communications coordination for the department's specialty teams and liaison for the department's interoperability with other jurisdictions.

His current responsibilities include coordinating the use of, designing the training on, and assisting with the maintenance of communications equipment and policies for special operations teams (including Urban Search and Rescue, Metropolitan Medical Response Systems, EMS, etc.). Mr. Lombard has been in the Fire Service for 16 years and a member of the IAB and the ICIS SubGroup from its inception.

During the past year, he has taken a leadership role in the coordination of efforts to standardize the training and certification for those individuals responsible for managing emergency incident communications throughout the Nation. He remains involved in active communications-related roles such as NFPA 1221 (the standards committee for Public Emergency Service Communication), Project SAFECOM's Emergency Response Committee, FEMA's US&R teams, and as a public safety communications instructor at Texas A&M University/Texas Engineering Extension Service.



Mike Tuominen

*Telecommunications Specialist, Incident Communications
Operations, National Interagency Fire Center,
United States Forest Service*

Mike Tuominen has more than 20 years of experience in incident communications and functions at the national level as an operations specialist for all-risk incident communications involving both natural and human-caused disasters. During such incidents he functions as a Communications Technician, Communications Unit Leader, Communications Coordinator, Communications Duty Officer or Technical Specialist. His duties include the management of all facets of emergency communications systems which use low-power VHF and UHF land mobile radio, HF radio, satellite radio and telephone as well as frequencies, equipment, and personnel resources for areas involved in severe multiincident emergencies. He is also involved in training through the National Wildfire Coordinating Group for Incident Communications Technician S-258, Communications Unit Leader S-358, and Communications Coordinator and has been involved in the development of an all-risk Communications Unit Leader course. Some of his recent assignments include Hurricanes Katrina and Rita 2005; Southwest, Pacific Northwest, and Northern Rockies Fires 2005, 2006, and 2007; Florida/Georgia Fires 2007; and technical assistance to the Republic of Ghana 2005.

Detection & Decontamination (D&D) SubGroup



CO-CHAIR

Steve Clendenin
Massachusetts Department of Fire Services

FEDERAL CO-CHAIR

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

Membership

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

Thomas Brandon
Suffolk County (NY) Police Department

Charlie Brannon
National Naval Medical Center

Alim Fatah
National Institute of Standards and Technology

Cheryl Gauthier
*Bioterrorism Response Laboratory, Massachusetts
Department of Public Health*

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

Roger Hatfield
Nashua (NH) Fire Department

Gene Ryan
Chicago (IL) Fire Department

James Schwartz
Arlington County (VA) Fire Department

Peter Stevenson
United States Environmental Protection Agency

Wes Thomas
Downers Grove (IL) Fire Department

Michael Walter
*Department of Defense, Joint Program Executive
Office for Chemical and Biological Defense*

Subject Matter Experts

Ed Bailor
United States Capitol Police (Retired)

Thomas Groel
Federal Bureau of Investigation, Hazardous Materials Response Unit

James Stewart
National Institute of Standards and Technology Support Contractor

John Wilson
44th Civil Support Team

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 agent (chemical, biological, radiological, nuclear, and explosive) contamination throughout designated areas or at specific points and 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 [TICs]), 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 the responder a reference to the type of equipment required to prepare for, respond to, mitigate, and recover from a CBRNE 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 identify 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 procedures to optimize safety, interoperability, and efficiency in response to CBRNE incidents.
- Encourage government, military, and private agencies, as well as manufacturers, to sponsor and support priority research and development projects to satisfy local, state, and federal CBRNE incident response equipment requirements based on the realistic needs of the first responder community.
- To encourage the detection capabilities to support an all-hazard approach to emergency response.

Decontamination

Chemical Warfare and Toxic Industrial Chemical Contamination Levels Study. Studies continue to be conducted at ECBC, with support from National Institute of Technology and Standards (NIST) and the Department of Homeland Security (DHS), to provide real-life levels of contamination that may be experienced by victims or emergency response personnel in a chemical event. These chemical warfare contamination level studies use simulants and real dissemination devices to gather data on the amount and location of contamination. Multiple reports have been published discussing the testing and modeling of the contamination a responder or victim may encounter in a chemical event, including “Assessment Method for Determining Hazardous Material Dissemination Through Integration of Empirical and Theoretical Source Information, Part 1: Deposition of Liquid Hazards on Personnel and Local Environments From Improvised Explosive Devices” and “Hazard Levels in the Hot Zone and Warm Zone Following Dissemination of Selected Chemical Warfare Agents by Explosives and Sprays.” The testing data and reports are being used as a basis to evaluate how much contamination may be expected to be on personnel as well as how much contamination may be on the scene that could be transferred to the responders or victims causing increased medical and decontamination problems.

Decontamination Workshop: “How Clean is Clean Enough.” ECBC, NIST, and DHS sponsored a workshop in September 2007 to determine an acceptable level of decontamination for victims before they can be released from a chemical incident site. Answers to this difficult question will influence ongoing and future decontamination equipment performance standards. The workshop brought together individuals from federal, state, and local agencies so that all pertinent concerns and views could be expressed in an open, neutral, and nonattribution forum.

The group recommended that the community:

- Continue to use and update the TSWG “Best Practices” guide for decontamination.
- Consider an AEGL-2 (8-hour) level of airborne detectable agent as the goal for adequate mass decontamination.
- Consider an AEGL-1 (8-hour) level of airborne detectable agent as the goal for adequate technical decontamination.
- Work to develop field detection and identification systems that meet the criteria described in the ASTM E2411-07, Standard Specification for Chemical Warfare Vapor Detector (CWVD). It is important that the detectors have sensitivity below the agent concentration listed above, AEGL-2 and AEGL-1.
- Continue to fund, test, and evaluate the decontamination processes and the detection and identification equipment necessary to ensure and document the effectiveness of the decontamination system.

Decontamination Equipment Performance Standards. The following were published by ASTM on January 1, 2008:

- ASTM E2542-08, “Standard Specification for Portable Water Heaters Used at Personnel Decontamination Stations”
- ASTM E2543-08, “Standard Specification for Portable Air Heaters Used at Personnel Decontamination Stations and Shelters”

Detection

Biological Threat Response. Since performance standards for biological detection devices are lacking, public health and public safety representatives on the D&D subgroup have jointly developed a comprehensive training program to encompass all aspects of a biological threat response, including the appropriate use of field equipment. This training includes on-scene communication with public health, appropriate PPE, threat assessment, all-hazards field screening that incorporates the actual use of the equipment, specimen collection to include aseptic technique and hands-on collection strategies, decontamination, risk communication, completion of paperwork (submission form, field screening report, chain of custody), packaging and shipping of specimens, processing and testing at the LRN laboratory, and demonstrated annual competency assessment for first responders on the entire biological threat response, including any field equipment they use.

Biological Detector Technology. The U.S. Army's Edgewood Chemical Biological Center (ECBC, Aberdeen Proving Ground, Maryland) has released its biannual market survey on biological detector technology. This extensive, thorough survey classifies commercially available detectors by technology type and applicability for different operational environments. Each product is ranked on various factors for its use in the field, in a mobile laboratory, in a diagnostic laboratory, and in analytical laboratories. Information provided by manufacturers and subject matter experts was combined to give a numerical score for each product for each operational scenario (field, mobile lab, diagnostic lab, and analytical lab). These scores are based on multiple weighted criteria from the following categories: effectiveness, logistics, operations, and biological agents detected. The report can be viewed through the Responder Knowledge Base Web site or directly viewed/downloaded from www.ecbc.army.mil. The following is from the author's summary:

The process of comparison and contrast among competing scientific technologies is a useful exercise to assist the research community in deciding which product best fits their particular needs. As a variety of fundamentally different technologies now exist for the task of detection, a method for comparison is particularly useful at this time. Product information was collected from interested vendors and compared with a model, as well as a handful of traditional protocols. A set of important and discriminating criteria was established to differentiate between competing technologies and used to generate overall rankings for four different usage scenarios. The overall ranking weights were based upon the authors' experiences and opinions, and would likely vary slightly from person to person, although they tend to represent the general opinions of the research community at large. The model generated during this report permits sensitivity analysis that could be used to consider other views.

New and Emerging Biological Detection Technology. In the last three years, commercially produced screening technologies have been developed which seek to fill the need for an affordable and rapid generic detector for suspicious powders. A market survey of commercially available systems for generic prescreening of suspicious powders revealed three kits currently marketed to first responders for use in ruling out hoax powders. The testing of each kit consisted of two parts: determination of the limit of quantitation (LOQ) of agents in each kit and the effect on agent LOQ in the presence of suspicious powders. Specifically, each kit was tested with the biological agents *Bacillus anthracis* Δ Sterne (B. anthracis Δ Sterne), *Yersinia pestis* A1122 (Y. pestis A1122), and ricin toxin. The LOQ was determined for each agent for each technology. In addition, a panel of common hoax powders was assessed in the absence of agent using each screening tool to show the kit's ability to differentiate hoax powders from biological agents. Mixtures of each agent and powder were also analyzed for the kits' ability to detect the agent in the presence of a potential interference matrix. The technologies in this study were compared to the specifications reported by the individual manufacturers. Each technology assessed in this evaluation employs a different mechanism for the detection of biological materials, and it is important that first responders are aware of the performance and the limitations of each system so that they can effectively employ the technology to protect the homeland. A report on the study is not yet published.

Detection Equipment Performance Standards. The Chemical Warfare Vapor Detector Standard (CWVD) ASTM E2411 has been published and is available through ASTM. This performance standard is being used as a baseline for a TIC detector which has been submitted to the ASTM committee E54.01, Homeland Security Applications, Sensors and Detectors. The final selection of which specific TICs and the level of detection required for each TIC is still being investigated/developed. The TIC work is being performed by ECBC in conjunction with the U.S. Army Center for Health Promotion and Preventive Medicine, the National Institute of Justice, the National Institute of Standards and Technology, and the Department of Homeland Security.



Steve Clendenin

*Deputy Director, Hazardous Materials Response Division
Massachusetts Department of Fire Services*

Steve Clendenin retired from the Framingham Fire Department after 24 years with the rank of Captain. He has been a certified instructor for the Massachusetts Department of Fire Services since 1981 and was program coordinator for both the Maritime Firefighting Program and the Industrial Fire Brigade program. Steve is also an adjunct instructor for the National Emergency Response and Rescue Training Center at Texas A&M University. He was a developer for the program “Development of a State/Regional CBRNE Task Force” and teaches the course across the country for NERRTC. He has served for nine years as Deputy Director for the Massachusetts Department of Fire Services Hazardous Materials Response Division, which trains, equips, and manages 280 HAZMAT technicians responsible for emergency response across Massachusetts 351 communities statewide. As a Task Force Leader for the FEMA Urban Search and Rescue Task Force, Massachusetts Task Force One, Steve has deployed to numerous incidents, including the World Trade Center and Hurricane Katrina. Also a HAZMAT specialist for the FEMA Incident Support Teams, Steve has deployed six times.



Elaine Stewart-Craig

*Chemical Engineer; Research, Development
and Engineering Command
Edgewood Chemical and Biological Center*

Elaine Stewart-Craig, a chemical engineer who has worked for ECBC for more than 25 years, is currently Special Projects Group Leader. Her primary duties include the development of chemical and biological standards for commercial equipment to be used by the emergency response community in the event of a terrorist attack. This program, funded by DHS, is a joint effort between ECBC, NIOSH, and NISH. Ms. Stewart-Craig has a B.S. in chemical engineering from the University of Virginia and an M.B.A. from Loyola College. She began her career in personnel protection equipment, designing and producing CB-protective masks and filters for the military, and has been involved with quality assurance, strategic planning, and future business development for ECBC. Ms. Stewart-Craig is a member of ASTM Committee E54, Homeland Security Applications, and has been involved in the area of homeland security/defense since 1995.

Medical SubGroup (MSG)

CO-CHAIR

Tom Walsh
Seattle (WA) Fire Department

FEDERAL CO-CHAIR

Stephen Skowronski
Centers for Disease Control and Prevention

Membership

Knox Address
Louisiana State University Health Sciences Center - Shreveport

Sandy Bogucki
Yale Emergency Medicine

Kelly Burkholder-Allen
University of Toledo

Richard Burton
Placer County (CA) Health and Human Services

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

Earl Hall
University of Montana, College of Health Professions and Bio-Medical Science

Keith Holtermann
United States Department of Health and Human Services

Susan Jones-Hard
Centers for Homeland Defense and Security

Gregg Lord
George Washington University

Paul Maniscalco
National Association of Emergency Medical Technicians

Kenneth Miller
Orange County (CA) Fire Authority

Lawrence Tan
*New Castle County (DE) Department of Public Safety,
Emergency Medical Services*

Subject Matter Experts

John Ferris
United States Occupational Safety and Health Administration

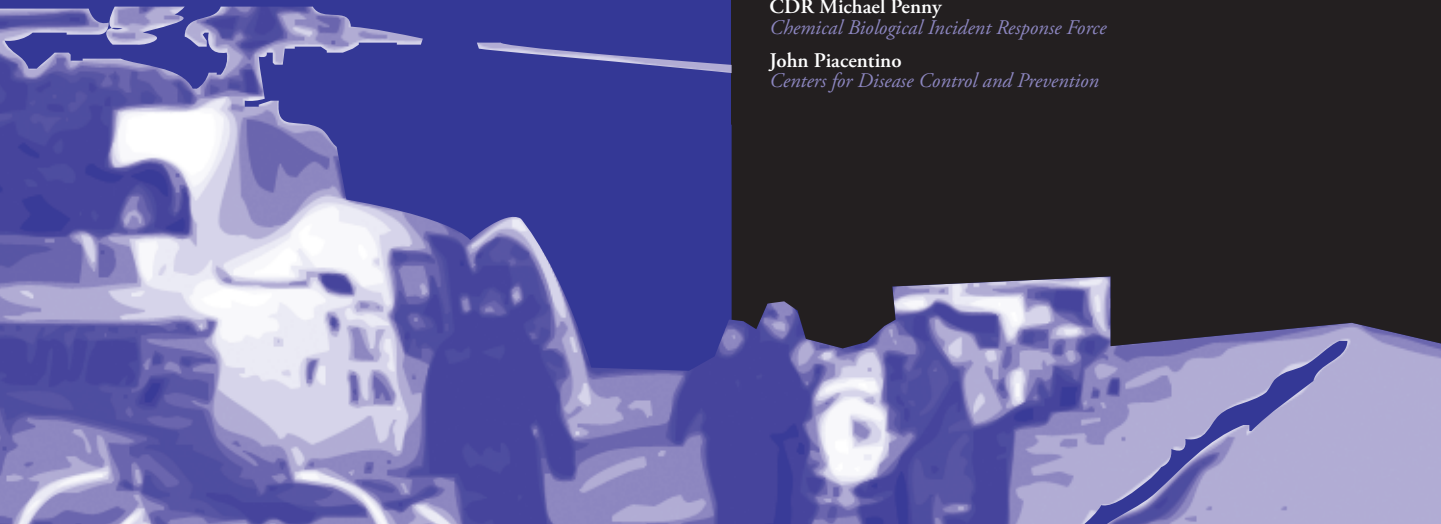
Mark Gibbons
Maryland State Police, Emergency Operations Section within Special Operations Command

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

Paul Kim
United States Department of Veterans Affairs

CDR Michael Penny
Chemical Biological Incident Response Force

John Piacentino
Centers for Disease Control and Prevention



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 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 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.

Finally, the MSG recommends and supports efforts to provide equipment procurement guidance to public health and medical authorities that is compatible and interoperable with the Department of Homeland Security Master Equipment List (MEL), Responder Knowledge Base (RKB), and the IAB SEL.

Accomplishments in 2007

Equipment/Supplies/Pharmaceuticals

Two new items were added to the Medical Section of the SEL. In addition, the Medical SubGroup worked to improve the utility of the information within the SEL by linking a commonly used acronym for an emergency facility, "POD" for "Point of Dispensing," to a list of recommended equipment and supplies within the SEL. This list is not intended to be absolute. The intent is to generate a detailed sample list from the entire SEL.

Training

The Medical SubGroup began adding information to a new field within the SEL titled "Training Requirements."

Initiatives and Progress (2008 and Beyond)

The MSG will review RKB user feedback on the utility and interest in the POD linkage described above. If user feedback is positive, additional acronyms may be linked to recommended lists. Other topics of interest to the MSG include the following:

- Veterinary and agricultural equipment, supplies and pharmaceuticals
- Mortuary equipment and supplies

MSG Chairs



Thomas Walsh

Seattle (WA) Fire Department

Thomas Walsh is currently assigned as Medical Services Officer in the Seattle Fire Department's EMS Division. He has served the citizens of Seattle for 35 years with assignments on engines and ladders and as a firefighter paramedic. He joined the MSG in 1998 shortly after its inception.



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 DoD 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 CDC 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 MSG since 1999.

Training SubGroup (TSG)

CO-CHAIR

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

FEDERAL CO-CHAIR

Barbara T. Wisniewski Biehn
*Department of Homeland Security, United States Customs
and Border Protection*

Membership

Ed Allen
Seminole County (FL) Sheriff's Office

Christina Baxter
Douglas County (GA) Fire Department

Terrence Cloonan
*Centers for Disease Control and Prevention, National Institute
for Occupational Safety and Health, National Personal Protective
Technology Laboratory*

Teresa Embrey
Technical Support Working Group

John Ferris
United States Occupational Safety and Health Administration

Paul Hauptman
Sacramento (CA) Sheriff's Office

Gregory Noll
South Central Pennsylvania Counter-Terrorism Task Force

Ronald Olin
Lawrence (KS) Police Department

James Turner, III
Delaware Emergency Management Agency

Roy Waugh
University of Washington

Subject Matter Experts

Kevin Johnson
Federal Bureau of Investigation, Hazardous Materials Response Unit

Jay Hagen
*Seattle (WA) Fire Department/Department of Homeland Security,
Office of Grants and Training, Senior Fellow/Practitioner*

Major J. Clay McGuyer
National Guard Bureau – J3

Valentine D. Sworts
Lewis and Clark City-County (MT) Health Department

Cindy Vanner
*Bioterrorism Response and Special Pathogens Laboratory,
Rhode Island Department of Health*



The mission of the Training SubGroup is to improve responder mission performance by conducting a cross-disciplinary review of, and providing end user input on, training doctrine, standards, 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's Office of G&T. The Training SubGroup also draws upon a wide range of SMEs, both within and outside the IAB.

Roles and Functions

- Focus on the operational applicability of the DHS training doctrine and programs.
- Provide end-user guidance and input on training program improvements.
- Facilitate the implementation of training programs and standards that support a capability-based response system.
- Review national training requirements for safe and effective operation of grant-funded responder equipment.

Initiatives and Progress

The IAB membership and federal partners recognize that, in addition to the core mission of recommending appropriate responder equipment as well as appropriate performance standards for their equipment, a crucial need exists to provide guidance on the training required to effectively and safely use the equipment. The basis for this guidance is enhancing preparedness capabilities and improving responder performance and safety.

The following initiatives were addressed in 2007–2008:

- Provided feedback for refining the DHS Universal Task List and Target Capabilities List and also provided recommendations for improvements in the development of operationally valid exercise evaluation guides (EEGs).

- Reviewed and provided input to DHS capability-based EEGs. The EEGs are designed to assist with exercise evaluation by providing evaluators with consistent, operationally valid standards and guidelines for observation, data collection, analysis, and report writing.
- Categorized the training requirements for equipment for inclusion in the SEL to assist in equipment procurement.
- Identified the training required (federal, state, local, and tribal) to successfully tie performance of tasks to overall capability.
- Provided responder input on how best to achieve improved performance.
- Reviewed and provided input on improvements to capability-based training programs.
- Reviewed and provided input on training programs that strengthen the links between strategies, capabilities, and tasks.
- Initiated a program to link training requirements with equipment recommendations contained in the SEL.
- Initiated a review of minimum core curriculum applicable across response disciplines, including OSHA 7600, Disaster Site Worker.
- Initiated the enhancement of the SEL to include training requirements for each SEL item. The following definitions were adopted:
 - Core training is defined as the fundamental baseline knowledge, skills, and abilities (KSAs) required for job assignment. For example, an Emergency Medical Technician—Intermediate.
 - Initial training is defined as the training required for a responder competent in a specialization to achieve competency-based KSA beyond day-to-day duties. For example, competency-based training reflects the use of:
 - new detection equipment by a certified HAZMAT technician;
 - a laser rangefinder by a certified law enforcement officer; and
 - a specialized robot by a certified bomb squad technician.
 - Sustainment training is defined as training required to maintain competency-based KSAs.
- Reviewed the best practices in training delivery and design. The Training SubGroup adopted the instructional systems design model, also called a “systems approach to training.” This model applies a series of logical steps to ensure the development and delivery of consistent, quality training to meet operational needs. It consists of the following:
 - Analysis to determine what KSAs are required in the operational environment;
 - Design of curriculum into a program of instruction using terminal and enabling objectives to provide those KSA;
 - Development of curriculum using various educational approaches and delivery methods appropriate for different audiences and circumstances;
 - Implementation of training using one or more delivery methods appropriate to the audience; and
 - Evaluation of the effectiveness of the training in developing the desired KSA.
- Provided input to the Standards Coordinating Committee (SCC) in the development, adoption, and implementation of appropriate and relevant training standards.

Ongoing Commitments

- Continue to be a sounding board for training doctrine and programs. This task is essential in focusing funds and resources on relevant, operationally sound training programs.
- Continue to work with the respective IAB SubGroups to identify each individual item as having a minimal, moderate, or extensive training requirements based on initial and sustainment training required to operate the equipment.

Priorities of 2008–2009

- Review and provide input to Homeland Security Presidential Directive (HSPD) 22, Domestic Chemical Defense, as requested by the White House Homeland Security Council and the Technical Support Working Group.
- Review and provide input on the development of the Law Enforcement Personal Protective Equipment Standards and Training process, as requested by the National Institute of Justice.
- Provide input on the development, adoption, and implementation of appropriate and relevant training standards and requirements.
- Match training requirements to responder equipment.
- Review existing training programs for relevance to HSPD 8.
- Review and provide input on improvements to existing DHS training doctrine and programs.
- Review core competency requirement standards to mission roles and recommend appropriate standards be adopted to address the roles.

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 training requirements based on these factors.

In future editions of the SEL, the Training SubGroup will work with the respective SubGroups to identify each individual item as having a minimal, moderate, or extensive training requirement based on initial and sustainment training required to operate the equipment. As part of this effort, the Training SubGroup will continue to work to recommended training baselines by equipment category.

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

The IAB Training SubGroup recommends that organizations purchasing or developing training require that it adhere to the principles of instructional systems design and best practices for adult learning.

The IAB Training SubGroup strongly recommends that any equipment purchased include identification of initial and sustainment requirements for competency-based training on the calibration, operation, and maintenance of the equipment.



Alan Dennis Vickery

*Assistant Chief of Operations
Seattle (WA) Fire Department*

A.D. Vickery, a 42-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

*Director, Workforce Development Division
Office of Training and Development, United States Customs
and Border Protection, Department of Homeland Security*

Barbara Biehn has been an advocate for consistent, high-quality training for operational communities throughout her tenure with the federal government. She leads the division responsible for identifying and addressing the cross occupational training needs of the CBP workforce, in areas such as intelligence, international trade, and other mission support functions.

Prior to joining CBP, Ms. Biehn spent 6 years in with the Office for Domestic Preparedness where she held various training and management positions prior to and after its incorporation into DHS, including Deputy Director of the Training and Exercise Division. She began her career as an intelligence officer in the U.S. Air Force preparing fighter pilots against likely threats and completed multiple deployments in southwest Asia. Ms. Biehn also served as a training project director in support of the DoD National Guard Civil Support Teams. Ms. Biehn's background includes an M.S. in strategic intelligence studies from the Joint Military Intelligence College, where her thesis focused on Algerian political terrorism and terrorist decision-making models.



- 1. Purpose.** The InterAgency Board (IAB) for Equipment Standardization and Interoperability is designed to establish and coordinate local, state, and federal standardization, interoperability, compatibility, and responder health and safety to prepare for, train and respond to, mitigate, and recover from any incident by identifying requirements for an all-hazards incident response with a special emphasis on Chemical, Biological, Radiological, Nuclear or Explosive (CBRNE) issues. An integrated suite of 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 support them, are needed to guide the efforts of the manufactures and equipment developers; and to serve as a guide for informed procurement decisions by the appropriate agencies. These standards are to support the needs of response organizations to include law enforcement, fire fighters, HAZMAT, emergency medical and other related agencies that consist of the first elements to respond to incidents or attacks, and also pertain to organizations that are involved in the mitigation and recovery phases of such attacks. This document describes the strategy and process to develop such an integrated standards suite.
- 2. Objective.** The objective of this effort is to enhance public safety and health by defining requirements and identifying a set of standards 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. Additionally, we seek to facilitate the adoption of standards that can be used by local, state, and federal public safety and health communities. In order 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). 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.
- 3. Standards Development Process.** The Office of Law Enforcement Standards (OLES) of the National Institute of Standards and Technology (NIST) serves as the Executive agent for the SCC. OLES has developed an integrated process for guiding the development of standards to facilitate linkage to federally funded equipment grant programs for first responders. This DHS endorsed process takes into account the need to integrate a conformity assessment program within the development process. This process is detail in Appendix 1 of this document.
- 4. Organization and Responsibilities.** The IAB committees and subgroups are critical to development of the suite of standards.

 - The Standards Coordination Committee (SCC) has the primary lead for coordinating standards requirements and priorities for the IAB as outlined in the IAB charter. The Equipment SubGroups identify functional requirements for equipment in their commodity areas, in close collaboration with the user community. They also identify and recommend to the SCC existing technical issues and standards for direct incorporation, standards that could be incorporated with modification, and new standards that need to be developed
 - The Office of Law Enforcement Standards (OLES) at the National Institute of Standards and Technology (NIST) serves as the Executive Agent for the SCC and in accordance with this plan. OLES will:
 - o Maintain a library of all IAB adopted standards

- Provide the list of IAB adopted standards to the Department of Homeland Security (DHS), the National Institute of Justice (NIJ) and other appropriate agencies that may adopt these standards and link them to grants programs.
- Provide the list of IAB standards requirements and priorities to DHS, NIJ and other appropriate organizations that may be in a position to support the development of such standards.
- Coordinate with appropriate agencies to ensure the standards development process as outlined in Appendix 1 is followed.

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

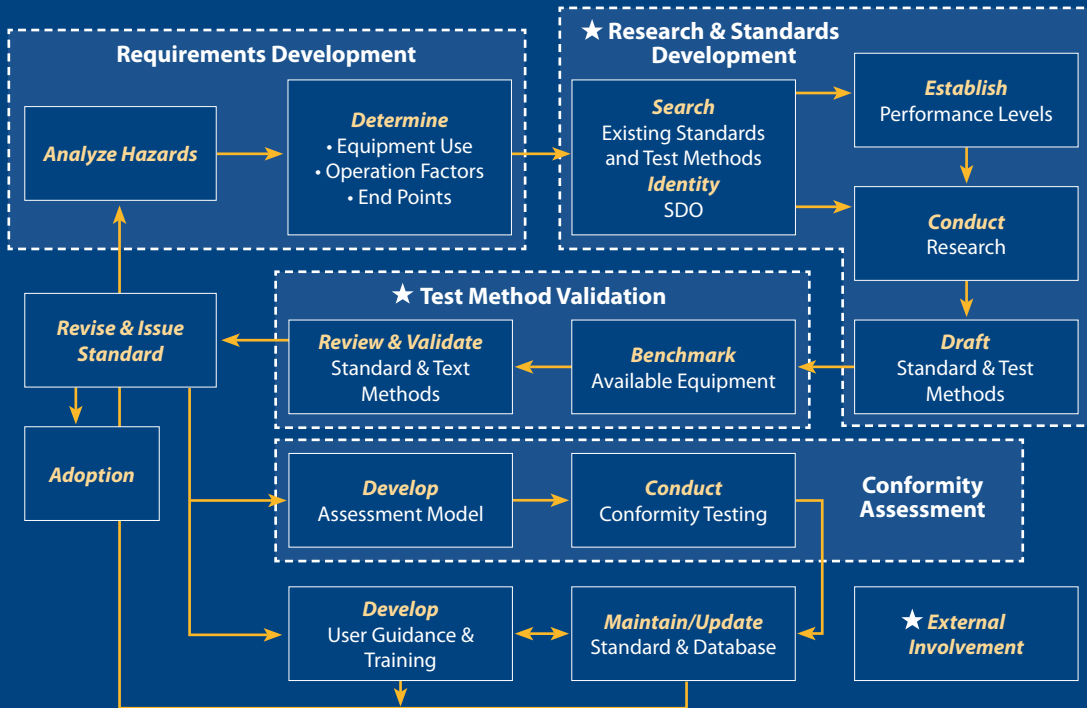
- *Adoption of Existing Standards* – Standards that require no modification will be added ‘as is’ to the Standards Suite. The adoption and inclusion of a standard into the Suite will follow the review and approval process as developed by the SCC. Cognizant SDOs will be notified. These standards will be disseminated to the state, local, and federal public safety and health communities and to manufacturers, developers, and the test-and-evaluation community.
- *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 for implementation. In cases where existing standards are not able to be modified to meet the specific needs of the IAB, then a new standard will be developed as required. 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.
- *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 appropriate sponsor agencies and/or SDOs for development. 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.
- *Methodology for Reviewing Standards* – A process will be put in place so that, on a biannual, periodic basis, the standards included in the 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 Standards Suite are updated, modified, revised, replaced, or superseded by the SDO.
- Recommendations for adoption, modification and adoption, as well as the identification of new standards to be developed will be documented.

Appendix 1: Equipment Standards Suite Development Process

OLES, as the Executive agent for the SCC and in over 30 years of developing standards for the criminal justice community, developed the following standard development process to ensure tie in to federally funded equipment grant programs for first responders. This DHS endorsed process takes

into account the need to integrate a conformity assessment program within the development process. The process has proven so effective that OLES and many of OLES's technical partners have adopted it to guide the development of standards not only for CBRNE equipment but also for other types of equipment standards. Some standards-development activities require following the entire process; others may be more limited in scope and may not require completion of the whole process, as illustrated in the figure below.

Standards Development Process Management Model



Requirements Development: The first step is to develop the requirements for the standard. A threat and hazard analysis is used to determine the requirements of the user, what the responder needs the equipment to do and under what conditions. In the analysis, a number of factors need to be addressed such as: What is the threat that is to be countered? What is the use of the technology? What environmental conditions need to be considered; i.e. temperature, humidity ranges to be considered, flame resistance, etc.? What key endpoints must be measured, i.e. is it detection of specific agents and at what range of concentrations? What operational considerations need to be addressed to ensure that equipment compliant to the standard will be suitable for the users' concept of operations?

Research and Standards Development: The next step is the development of the performance requirements and performance standard and appropriate test methods to evaluate the performance of the equipment to the standard. Maximum use is made of the voluntary consensus standards development process, the development and promulgation of the standards through recognized Standards Development Organizations (SDO) such as ASTM International, the American National Standards Institute (ANSI), AOAC International, the National Fire Protection Association and other such organizations. A review of existing standards and test methods is conducted to identify: 1) standards and test methods that meet the requirements as identified, or 2) standards and test methods that if modified could meet the requirement, or 3) if no such standards and test methods exist, then identify the appropriate SDO for development and promulgation of the new standard, and initiate the development of the standard through the SDO. In some cases supporting research must be conducted as part of the standards development process to provide technical support in the development of the standard or supporting test methods. The result of this phase is draft performance standard and supporting test methods.

Test Method Validation: Once the draft standard and test methods have been drafted, the next step is to procure commercially available products, and test them to the draft standard. This process validates the test methods, verifying that the test methods can be translated to standard operation procedures that qualified laboratories can use and implement, and it benchmarks currently available equipment. If no benchmarked equipment meets the standard, then the standard must be closely scrutinized. If however, the preliminary benchmarking indicates that no equipment can meet the standard, even with modifications by the manufacturer, then the performance standards and the test methods must be reevaluated. Decisions must be made whether or not to revise the standards and test methods based on the results of the initial benchmark testing without sacrificing health and safety requirements or to maintain the standards as drafted.

Revise and Issue Standard: After identifying resolving all concerns, the standard is issued or promulgated by the appropriate SDO. One key component of this program is the adoption of these standards by the appropriate agencies. This includes the IAB, the Department of Homeland Security, or adopting by local jurisdictions or other organizations.. Adoption by DHS or other agencies serves to tie compliance to appropriate standards with the federal grants programs, in compliance with Homeland Security Presidential Directive (HSPD) & (National Preparedness).

Conformity Assessment: The development of performance standards and test methods to evaluate performance to these standards does not ensure that the equipment going to the responders does indeed meet these standards. Programs must be put in place to use the test methods to evaluate conformity to the appropriate standards. The details of these conformity assessment programs will vary, depending on the type of technology being evaluated, the consequence of non-conformance to the standard, whether the standard promulgated by a particular SDO contains provisions for conformity assessment and a number of other factors. In some cases appropriate third party test facilities must be identified that satisfactorily conduct the testing, and the appropriate test management and certification program must be established.

Develop User Guidance and Training: The standards and associated test methods by necessity are very specific and technical documents. The capabilities and limitations on the performance of the technology must be translated in terms that are understandable and useable by the end users of the equipment. They must know whether the system has been tested against Toxic Industrial Chemicals/Materials (TIC/TIMs) or just against Chemical Warfare Agents. Development and distribution of this type of information is essential for the user, the procurement official, and in the development of concepts of operation and training programs. Training programs and concepts of operations (CONOPS) must be adapted or developed to effectively use and understand the capabilities of technologies that meet these standards.

Maintenance of Standard: There must be provisions for the review and update of the standard. As experience is gained in the use of the standard, as new technologies and test methods become available, or in the case of unforeseen problems with the standard and test method, the standard will require periodic revisions. Most SDOs have procedures to accomplish these tasks, and this will be one of the considerations in selecting the appropriate SDO for the development and promulgation of any new standard. A list of compliant equipment must be maintained and available for the user community. One such portal is the DHS-funded Responder Knowledge Base. As Executive Agent for the SCC, OLES will maintain a library of the IAB adopted standards. This also includes addressing standards that are withdrawn by the parent SDO.

External Involvement: This process is not conducted in a vacuum. Involvement from external agencies and public comment from users, developers, manufacturers and other concerned individuals and organizations are critical in the development of the standards. There are a number of points within the process where such comment will be actively solicited. Each SDO has its own method for addressing and incorporating public comment in their standards process.

Acronym List

AEL	Authorized Equipment List
ANSI	American National Standards Institute
APCO	Association of Public-Safety Communications Officials-International, Inc
ATSD(NCB)	Assistant to the Secretary of Defense (for Nuclear and Chemical and Biological Defense Programs)
CAD	Computer-aided Dispatching
CB	Chemical and Biological
CBDP	Chemical Biological Defense Program
CBRN	Chemical, Biological, Radiological, Nuclear
CBRNE	Chemical, Biological, Radiological, Nuclear and Explosives
CDC	Centers for Disease Control
CFR	Code of Federal Regulations
CIC	Compatibility and Interoperability Committee
CIT	Capabilities Implementation Team
CWA	Chemical Warfare Agents
D&D	Detection and Decontamination SubGroup
DHS	Department of Homeland Security
ECBC	Edgewood Chemical Biological Center
EEG	Exercise Evaluation Guide
EMS	Emergency Medical Services
FACC	Federal Agency Coordinating Committee
FDNY	New York City Fire Department
FEMA	Federal Emergency Management Agency
G&T	Department of Homeland Security, Preparedness Directorate Office of Grants and Training
HHA	Handheld Assay
IAB	InterAgency Board
IACP	International Association of Chiefs of Police
IAFF	International Association of Fire Fighters
ICIS	Interoperable Communications and Information Systems SubGroup
JPEO-CBD	Joint Program Executive Office for Chemical and Biological Defense
KSA	Knowledge, skills, and/or abilities
LRN	Leader in governance, ethics and compliance management
MSG	Medical SubGroup
NFPA	National Fire Protection Association
NIEM	National Information Exchange Model
NIJ	National Institute of Justice
NIOSH	National Institute for Occupational Safety and Health
NIST	National Institute of Standards and Technology

NPPTL	National Personal Protective Technology Laboratory
OLES	Office of Law Enforcement Standards
PPE	Personal Protective Equipment
PP&OE	Personal Protective and Operational Equipment SubGroup
PPT	Personal Protective Technology
RDECOM	Research, Development and Engineering Command
RDT&E	Research, Development, Test and Evaluation
RKB	Responder Knowledge Base
RMS	Record Management Systems
SAR	Specific Absorption Rate
SCBA	Self Contained Breathing Apparatus
SCC	Standards Coordination Committee
SEL	Standardized Equipment List
SME	Subject Matter Experts
S&T	Science and Technology Committee
TCL	Target Capability List
TEW	Total Extreme Warfare
TIC	Toxic Industrial Chemical
TSG	Training SubGroup
TSWG	Technical Support Working Group
WMD	Weapons of Mass Destruction