



**The InterAgency Board for
Equipment Standardization
and InterOperability**

**2002
Annual
Report**

Dedication

In honor of John “Jack” Fanning, an IAB member, who lost his life on September 11th as he responded to the World Trade Center terrorist attack as NYFD’s Chief of Hazardous Materials Operations. Jack Fanning was an IAB member since its inception, a strong supporter and advocate for the InterAgency Board and its work to standardize equipment for the response to terrorist events.

Preface



Since September 11, 2001, the United States has made great strides to improve homeland security, but much remains to be done. Our enemies are working to obtain chemical, biological, radiological, and nuclear weapons with which to attack America. If terrorists acquire such weapons, they will try to use them, with consequences that are potentially

more devastating than those we suffered on September 11.

The United States has interests, responsibilities, and commitments that extend around the world, but its most important mission is protecting the homeland from future terror attacks. We cannot precisely identify the adversaries who will threaten us, but we can identify the trends that will give rise to important threats and opportunities, particularly concerning the proliferation of weapons of mass destruction. In particular, globalization has markedly increased the availability of the technology and expertise that terrorists need to challenge the United States and its allies. The pace and scale of proliferation have exceeded earlier intelligence estimates and suggest that the challenges may grow faster than expected.

Consequently, we must prepare to combat a new wave of terrorism involving weapons of mass destruction, and we must ensure that we have coordinated and focused the response effort of the federal, state and local governments. The IAB has been working diligently to prepare the first responder community at the local, state and federal levels for a weapons of mass destruction incident.

In this report you will find a progress report for each committee and SubGroup, a new charter, a revised IAB Strategic Plan for CBRNE Protective Equipment Standards, a new reporting process to be used by all SubGroups, a revised and updated Standardized Equipment List in its new format, and the future initiatives planned for the InterAgency Board.

“Out of Many, One”

Letter from the IAB Chair, A.D. Vickery

The InterAgency Board for Equipment Standardization and InterOperability (IAB) is acutely aware of the continued and emerging threats of weapons of mass destruction (WMD) terrorism to the U.S. and its allies. We recognize the impact terrorism has on our basic freedoms, our way of life. We understand the necessity for close coordination among the local community and the federal government to improve protection and response. And, therefore we continue to develop and strengthen our relationships within local communities, the federal government and the newly formed Department of Homeland Security (DHS).

The IAB continues to follow its guiding principles by annually publishing a standardized equipment list and promoting interoperability among civil and military WMD response units at local, state, and federal levels.

We are working aggressively to meet first responder requirements and map a strategic plan for the way ahead. In an effort to accomplish these goals we have implemented a new charter, restricted our SubGroups and added new members. The new charter reaffirms our commitment to standards and interoperability in both equipment and operating procedures. Our new members have increased our reach across other agencies and enriched our organization as we continue to evolve.

The IAB adopted the first new standard in the CBRNE equipment standards suite: NIOSH Chemical Biological, Radiological, and Nuclear (CBRN) Standard for Open-Circuit Self-Contained Breathing Apparatus (SCBA). We have also developed a standards priority list that is researched, tracked and reported by the IAB's Federal Coordinating Committee (FCC) and Standards Coordination Committee (SCC). With the new reporting process in place, the IAB will emphasize its efforts on the development of standards with DHS and other standards development agencies.

The IAB welcomes the creation of the DHS and asks that we be considered a "sounding board" for ideas and equipment intended for use by the first response community.

The InterAgency Board, though composed of a broad spectrum of response disciplines, has one goal — to embrace the safety of our Nation's responders, who take the front line in our homeland defense. We invite the continued involvement by the response community. We believe our success is the nation's success.

Dedicated to those brave Americans who stand ever vigilant to protect this country and its people from those who would attempt to deny us our freedom. May your strength give us strength.

THE INTERAGENCY BOARD



BOONE COUNTY, MISSOURI, FIRE PROTECTION DISTRICT
 CALIFORNIA DEPARTMENT OF HEALTH SERVICES
 CENTERS FOR DISEASE CONTROL AND PREVENTION (CDC) NATIONAL PHARMACEUTICAL STOCKPILE PROGRAM
 CENTER FOR EMERGENCY MANAGEMENT/ TERRORISM, STATE OF MISSOURI DEPARTMENT OF HEALTH AND SENIOR SERVICES
 CHICAGO FIRE DEPARTMENT
 CITY OF BOISE, IDAHO, FIRE DEPARTMENT
 CITY OF LAS VEGAS, NEVADA, OFFICE OF EMERGENCY MANAGEMENT
 CITY OF ORLANDO, FLORIDA, FIRE DEPARTMENT CIVIL SUPPORT TEAM
 CONTRA COSTA GOVERNORS OFFICE OF EMERGENCY SERVICES, CALIFORNIA STATE STRATEGIC COMMITTEE ON TERRORISM
 COUNTY OF ARLINGTON FIRE DEPARTMENT
 DARTMOUTH COLLEGE
 DEPARTMENT OF DEFENSE (DoD), OFFICE OF THE DEPUTY ASSISTANT TO THE SECRETARY OF DEFENSE (CHEMICAL/BIOLOGICAL DEFENSE)

DEPARTMENT OF ENERGY (DOE)
 DEPARTMENT OF HOMELAND SECURITY (DHS), OFFICE FOR DOMESTIC PREPAREDNESS (ODP)
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 DEPARTMENT OF VETERANS AFFAIRS (VA)
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 LOS ANGELES CITY FIRE DEPARTMENT
 LOS ANGELES COUNTY FIRE DEPARTMENT
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 LOUISIANA STATE POLICE
 MASSACHUSETTS DEPARTMENT OF FIRE SERVICES
 MASSACHUSETTS STATE POLICE/EXPLOSIVE ORDNANCE DISPOSAL UNIT
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 MINNEAPOLIS, MINNESOTA, POLICE BOMB SQUAD/NATIONAL BOMB SQUAD COMMANDERS ADVISORY BOARD (NBSCAB)
 MONTGOMERY COUNTY FIRE MARSHAL
 NASSAU FIRE DEPARTMENT
 NATIONAL EMERGENCY MANAGEMENT ASSOCIATION (NEMA)
 NATIONAL FIRE PROTECTION AGENCY ASSOCIATION (NFPA)
 NATIONAL IMAGERY AND MAPPING AGENCY (NIMA)



NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH)
 NATIONAL INSTITUTE OF JUSTICE (NIJ)
 NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST) OFFICE OF LAW ENFORCEMENT STANDARDS (OLES)
 NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST) BUILDING AND FIRE RESEARCH LABORATORY
 NAVAL RESEARCH LABORATORY (NRL)
 NATIONAL SHERIFFS' ASSOCIATION
 NEW CASTLE COUNTY, DELAWARE, POLICE DEPARTMENT, EMERGENCY SERVICES OPERATIONS
 NEW YORK STATE EMERGENCY MANAGEMENT AGENCY
 ORANGE COUNTY, CALIFORNIA, FIRE AUTHORITY
 SARASOTA COUNTY, FLORIDA, FIRE DEPARTMENT
 SEATTLE FIRE DEPARTMENT
 SPECIAL OPERATIONS RESPONSE TEAM, NMRT-EAST, DMAT NC-1
 TECHNICAL SUPPORT WORKING GROUP (TSWG)
 TEXAS A&M URBAN SEARCH AND RESCUE

UNITED STATES ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE (CHPPM) AND AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI) Z88 COMMITTEE
 UNITED STATES ARMY PROGRAM EXECUTIVE OFFICE FOR CHEMICAL AND BIOLOGICAL DEFENSE (PEO-CBD)
 UNITED STATES ARMY SOLDIER AND BIOLOGICAL CHEMICAL COMMAND (SBCCOM), EDGEWOOD CHEMICAL AND BIOLOGICAL CENTER (ECBC)
 UNITED STATES ARMY SOLDIER AND BIOLOGICAL CHEMICAL COMMAND, NUCLEAR, BIOLOGICAL AND CHEMICAL DEFENSE SYSTEMS
 UNITED STATES ARMY NATICK SOLDIER CENTER, NATIONAL PROTECTION CENTER
 UNITED STATES CAPITOL POLICE
 UNITED STATES COAST GUARD (USCG), NATIONAL STRIKE FORCE
 UNITED STATES MARINE CORPS CHEMICAL BIOLOGICAL INCIDENT RESPONSE FORCE (CBIRF)
 UNITED STATES MARINE CORPS SYSTEMS COMMAND (MARCORSYSCOM)

UNITED STATES MARSHAL'S SERVICE
 UNIVERSITY OF FINDLAY CENTER FOR TERRORISM PREPAREDNESS
 UNIVERSITY OF MISSOURI FIRE AND RESCUE TRAINING INSTITUTE
 VIRGINIA DEPARTMENT OF EMERGENCY MANAGEMENT
 YALE UNIVERSITY EMERGENCY MEDICINE

The IAB Member Organizations

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Introduction

Origins

Sanctioned by the Attorney General of the United States, the InterAgency Board for Equipment Standardization and InterOperability (IAB) was founded by the Department of Defense's Consequence Management Program Integration Office and the Department of Justice's Federal Bureau of Investigation Weapons of Mass Destruction Countermeasures on October 13, 1998. With the participation of various local, state, and federal government organizations, the IAB formulated its mission statement, organized the board into four SubGroups and two committees, developed a Charter, and identified the IAB Process and Strategic Objectives.

Mission

The InterAgency Board for Equipment Standardization and InterOperability Working Group is designed to establish and coordinate local, state, and federal standardization, interoperability, and responder safety to prepare for, respond to, mitigate, and recover from any incident by identifying requirements for Chemical, Biological, Radiological, Nuclear or Explosives (CBRNE) incident response equipment.

IAB Charter

Mission

The InterAgency Board (IAB) for Equipment Standardization and InterOperability Working Group is designed to establish and coordinate local, state, and federal standardization, interoperability, and responder safety to prepare for, respond to, mitigate, and recover from any incident by identifying requirements for Chemical, Biological, Radiological, Nuclear or Explosives (CBRNE) incident response equipment.

Scope

The IAB supports the local, state, and federal responders' efforts in Homeland Security by:

- Serving in an advisory capacity to all federal agencies,
- Facilitating integration among local, state, and federal response communities to promote proper selection and use of the best available equipment and procedures to optimize safety, interoperability, and efficiency,
- Developing, maintaining, and updating a Standardized Equipment List (SEL), that provides the responder a reference to the type of equipment required to prepare for, respond to, mitigate, and recover from a CBRNE incident,
- Advocating for, assisting in, and promoting the development and implementation of performance criteria, standards and test protocols for SEL-listed CBRNE incident response equipment,
- Encouraging the coordination of local and state response communities with established military and federal acquisition programs for procurement of SEL-listed CBRNE incident response equipment.
- Sharing knowledge, expertise, and technology regarding the detection, identification, warning, protection, decontamination, response management, and medical management of CBRNE incidents among local, state, and federal response communities.
- Providing a structured forum for the exchange of ideas among operational, technical, and support agencies for crisis and consequence management to promote interoperability among local, state, and federal response communities,
- Identifying and prioritizing CBRNE incident response equipment requirements,
- Encouraging manufacturers, governmental, military, and private agencies to sponsor priority research and development projects to satisfy local, state, and federal CBRNE incident response equipment requirements,
- Providing assistance and/or guidance to agencies, associations, and manufacturers, requiring operational testing of new and emerging equipment and technologies, and
- Preparing and publishing an annual report to articulate the activities and accomplishments of the IAB.

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

Organizational Structure and Responsibilities

IAB Chair

The IAB Chair 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 Chair is elected to a two-year term starting with the January 2002 meeting.

- The Chair administers, organizes, and facilitates the actions of the IAB.
- The Chair provides recommendations to the Federal Coordinating Committee and direction to the SubGroup chairs.

Federal Coordinating Committee (FCC)

A coordination committee that provides the interface between the IAB and sponsoring federal government agencies. The FCC consists of the federal officials from contributing agencies and departments. The FCC shall:

- Coordinate and leverage ongoing federal research, development, testing and evaluation (RDT&E) efforts to meet the responder requirements as identified by the IAB,
- Solicit and coordinate mission support for the IAB, which includes activities such as organizational staff support, contributory funding, project sponsors, meetings, technical support, the IAB business cycle, and resulting products,
- Meet with the IAB Chair on a regular basis to review SubGroup recommendations and actions,
- Meet to coordinate federal requirements for action by the IAB,
- Attend general membership meetings, and
- 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 four equipment SubGroups which consist of subject matter experts:

- Medical
- Personal Protective and Operational Equipment (PP&OE)
- Detection and Decontamination (D&D)
- InterOperable Communications and Information Systems (ICIS)

Committees - The IAB has two additional committees which consist of subject matter experts and the Co-Chairs of the above four SubGroups:

- Science and Technology (S&T)
- Standards Coordination Committee (SCC)

Co-Chairs - Each SubGroup/Committee elects two Co-Chairs, one from the local and state ranks and a second from federal or private ranks. The Co-Chairs shall be elected for two-year terms with the elections for the local/state Co-Chair and the federal/private Co-Chairs 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:

- Direct the efforts to accomplish the scope of IAB activities as identified in this charter,
- Provide liaison with the IAB Chair,
- Provide meeting minutes, status of ongoing projects, and written reports of recommendations and requirements from the SubGroup/Committee annually or as required,
- Serve as a member on the SCC and S&T Committee, and
- 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. (Fire, Hazmat, Law Enforcement, EMS, Public Health, etc.)

Membership - Participate in the SubGroups/Committees and lend their expertise and support to the IAB Mission.

- SubGroup/Committee membership will be limited to twenty voting members.
- SubGroup membership may be augmented with additional subject matter experts, as non-voting members, for specific projects, or with members of other SubGroups in a non-voting status.
- Any IAB member can make a nomination for membership to the SubGroup/Committee Co-Chairs.
- Members are appointed by a majority vote of the two SubGroup/Committee Co-Chairs and the IAB Chair.
- Individuals may serve as voting members in only one SubGroup, however they may participate in a non-voting status in other SubGroups.

Execution

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

- The first meeting shall consist of requirements development and briefing of R&D initiatives on CBRNE incident response equipment. These requirements will be included in the announcement for the Advanced Concept and Technology Exchange (ACTE).
- The second meeting shall consist of the ACTE to include industry participation.
- The third meeting updates the SEL and prioritizes requirements. These requirements are then forwarded to the FCC.

The InterAgency Board Structure

The IAB is organized into six functional SubGroups and committees, each chaired by a first responder, supported by a federal co-chair, and staffed with subject matter experts in that SubGroup's area of interest. Each SubGroup is responsible for maintaining its subsection of the Standardized Equipment List (SEL). The recently established seventh SubGroup, the Federal Coordinating Committee (FCC), is described below.

InterAgency Board

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

CHAIR

Alan D. Vickery, Deputy Chief, Special Operations, Seattle Fire Department

Federal Coordinating Committee (FCC)

A coordination committee that provides the interface between the IAB and sponsoring federal government agencies.

CHAIR

Ron Williams, Intelligence Operations Specialist, Federal Bureau of Investigation, WMD Countermeasures

Standards Coordination Committee (SCC)

Ensuring that WMD response equipment and technology is integrated into existing standards boards and regulatory bodies.

CO-CHAIR

Stephen N. Foley, Senior Fire Service Specialist, National Fire Protection Association (NFPA)

FEDERAL CO-CHAIR

Kathleen Higgins, Director, National Institute of Standards and Technology (NIST), Office of Law Enforcement Standards (OLEES)

Science and Technology Committee (S&T)

Focusing on advanced concepts entering development and newly emerging technologies that might be applied to crisis and consequence management.

CO-CHAIR

Vincent J. Doherty, Captain, Hazardous Material Operations, Fire Department, City of New York

FEDERAL CO-CHAIR

Tracy Cronin, Program Manager, Technical Support Working Group (TSWG)

Personal Protective and Operational Equipment SubGroup (PP&OE)

Addressing individual equipment, support systems, and area protection for WMD response.

CO-CHAIR

Ronald D. Watson, Battalion Chief, Los Angeles County Fire Department

FEDERAL CO-CHAIR

William E. Haskell III, Technical Program Development Manager,
U.S. Army Natick Soldier Center, National Protection Center

InterOperable Communications and Information Systems SubGroup (ICIS)

Addressing communications, information management, technical information support, and public awareness issues.

CO-CHAIR

John Sullivan, Sergeant, Emergency Operations Bureau, Los Angeles County Sheriff's Department

FEDERAL CO-CHAIR

Charles Bell, Program Manager Marine/NBC, U.S. Marine Corps Systems Command

Detection and Decontamination SubGroup (D&D)

Focusing on intrusive and non-intrusive detection; monitoring, sampling and analysis of suspected toxins; and methods to mitigate or dissipate a contamination.

CO-CHAIR

Gene Ryan, Chief Hazardous Materials, Chicago Fire Department

FEDERAL CO-CHAIR

Elaine Stewart-Craig, Program Manager, U.S. Army Soldier and Biological Chemical Command (SBCCOM), Edgewood Chemical and Biological Center (ECBC)

Medical SubGroup

Addressing casualty treatment for victims of a conventional or non-conventional weapons of mass destruction (WMD) attack and also preventive measures to avert victimization.

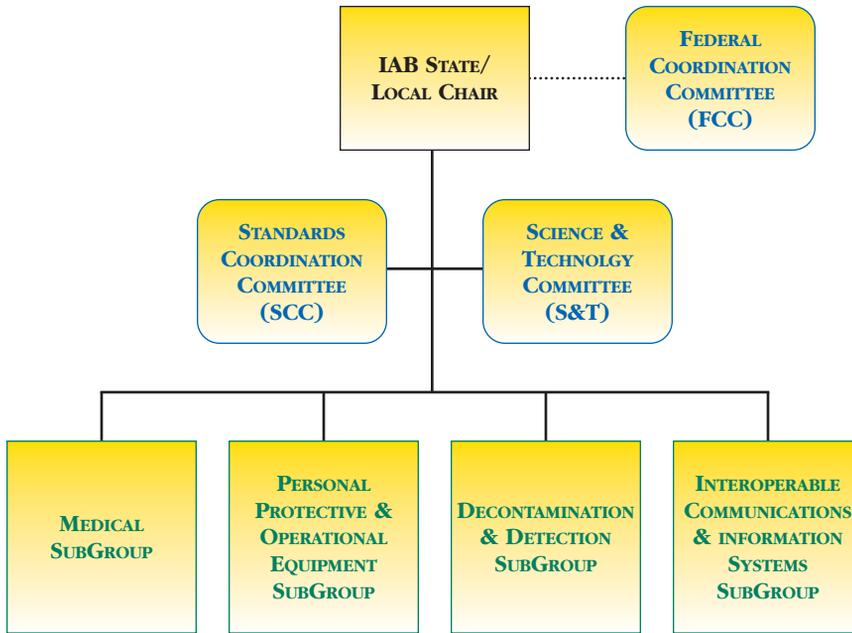
CO-CHAIR

Porter T. Shellhammer, Battalion Chief, Sarasota County, (Florida) Fire Department

FEDERAL CO-CHAIR

Paul D. Kim, M.D., Area Emergency Manager, Department of Veterans Affairs

Figure 1. InterAgency Board Organization



Federal Coordinating Committee (FCC)

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

The FCC provides the funding for operation of the IAB, representing both the previous structure and the transition to the new organization under the FCC. Multiple federal agency representation allows the IAB to maintain its independence as an organization as well as to best use the resources and expertise of the federal community.

The FCC members include the U.S. Department of Defense (DoD), the U.S. Department of Energy (DOE), the U.S. Department of Justice (DOJ) (which includes National Institute of Justice (NIJ), Office for Domestic Preparedness (ODP)*, the Federal Bureau of Investigation (FBI), and the Federal Emergency Management Agency (FEMA). With the formation of the Department of Homeland Security (DHS), DHS will become a member of the FCC in the place of those organizations that now have become part of DHS. Those agencies/departments that fund the IAB have voting members on the FCC. The following FCC agencies/departments will have one voting member: Department of Defense, Department of Justice (National Institute of Justice, Office for Domestic Preparedness, and the FBI), and FEMA.

Based upon agreement between the federal agencies, DOJ served as the first FCC liaison to the IAB Chair. DOJ selected a representative from the FBI to serve as the FCC Chair. The term length is one year. The Department of Defense and FEMA will subsequently serve as FCC chairs respectively.

The FCC leverages ongoing federal research, development, testing and evaluation (RDT&E) efforts to meet the responder requirements as identified by the IAB. The Chair of the IAB and the FCC work closely to prioritize initiatives within the IAB and the federal community. The FCC 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.

In the past year, the FCC:

- Revised and adopted a new charter.
- Updated the Standardized Equipment List (SEL) and developed a new format for it.
- Revised the “Strategic Plan for Developing Chemical, Biological, Radiological, Nuclear, and Explosives Protective Equipment Standards.”
- Adopted the first new standard in the CBRNE equipment standards suite; NIOSH Chemical Biological, Radiological, and Nuclear (CBRN) Standard for Open-Circuit Self-Containing Breathing Apparatus (SCBA).

Committees

MEMBERSHIP

Paul Bergeron

Department of Defense, Office of the Deputy Assistant to the Secretary of Defense (Chemical/Biological Defense)

Charlie Brannon

Department of Energy

Kathleen Higgins

National Institute of Standards & Technology/Office of Law Enforcement Standards

Wendy Howe

National Institute of Justice

Gil Jamieson

*Federal Emergency Management Agency, Office of National Preparedness**

Pete Nacci

*Office for Domestic Preparedness**

Ron Williams

Department of Justice, Federal Bureau of Investigation, Weapons of Mass Destruction Countermeasures

*transitioning to the Department of Homeland Security (DHS)

- Established ties with the Department of Homeland Security (DHS). The FCC continues to collaborate with DHS on first responder initiatives and standards development.
- Updated the IAB standards development priorities list.
- Adopted a reporting process to be used by all SubGroups.
- Standardized SubGroup “new” membership process, and added new members.

The FCC continues to work with the SCC to coordinate CBRNE Equipment Standards priorities with other organizations including but not limited to, National Institute for Occupational Safety and Health (NIOSH), National Fire Protection Association (NFPA), Occupational Safety and Health Administration (OSHA), National Institute of Justice (NIJ), Department of Energy (DOE), Federal Emergency Management Agency (FEMA), Department of Homeland Security (DHS), and the Office of Law Enforcement Standards (OLEES) of the National Institute of Standards and Technology (NIST).

The FCC reviews and approves the annual operating budget for the IAB, and maintains a support staff to facilitate operations. The FCC meets with the IAB Chair on a regular basis to review SubGroup recommendations and action items. The FCC attends IAB Board meetings. ■

Standards Coordination Committee (SCC)

MISSION

The SCC serves as a reviewer during the development of qualification requirements by other SubGroups to:

- Alert SubGroups and request reconciliation when contradictory requirements are proposed for complementary equipment,
- Alert SubGroups when proposed requirements contradict federal or state regulations,
- Raise attention to similar or additional qualification requirements under internal development within the regulatory, consensus, and voluntary standards organizations,
- Provide technical and non-technical advice for improvements,
- Facilitate new regulations and standards for unaddressed equipment,
- Promote harmonization of regulations, standards and guidelines,
- Establish the order of priority for developing or adopting standards, and periodically review and revise the priorities as requirements change or as standards are implemented,
- Develop, maintain, and publish the list of IAB adopted CBRNE Protective Equipment standards, and develop a schedule for periodic review of these standards, and
- Promote the interoperability of equipment through standards-making organizations, trade associations, and manufacturers.

FUNCTION AND ROLES

The SCC's role is to ensure that standards are in place to cover development, certification and use of equipment listed in the Standardized Equipment List (SEL). Members of this committee assist other SubGroups in identifying existing standards that may be used and facilitating standards development.

As stated in the IAB Strategic Plan, the SCC consists of a panel of representatives from federal and private standards organizations, and the co-chairs of the equipment SubGroups and the Science and Technology (S&T) Committee. The SCC is responsible for coordinating the CBRNE Equipment Standards projects of the IAB SubGroups with other organizations and enforcing authorities including, but not limited to, NIOSH, NFPA, Occupational Safety and Health Administration (OSHA),

CO-CHAIRS

Stephen Foley

National Fire Protection Association

FEDERAL CO-CHAIR

Kathleen Higgins

National Institute of Standards & Technology/Office of Law Enforcement Standards

MEMBERSHIP

Stacy E. Barnard

International Association of Fire Chiefs

Charles Bell

U.S. Marine Corps Systems Command

Paul Bergeron

Department of Defense, Office of the Deputy Assistant to the Secretary of Defense (Chemical/Biological Defense)

Charlie Brannon

Department of Energy

Tracy Cronin

Technical Support Working Group

Dr. Holly Dockery (Observer)

Department of Homeland Security, Standards/State and Local/Foreign Interactions

Vincent Doherty

Fire Department of New York

Jim Gass

Memorial Institute for the Prevention of Terrorism

Stephan C. Graham

U.S. Army Center for Health Promotion and Preventive Medicine and American National Standards Institute Z88 Committee

William E. Haskell III

U.S. Army Soldier and Biological Chemical Command, Natick Soldier Center, National Protection Center

Wendy Howe

National Institute of Justice

Gil Jamieson

Federal Emergency Management Agency, Office of National Preparedness*

Paul Kim

Department of Veterans Affairs

Michael Monahan

National Institute for Occupational Safety and Health

Pete Nacci

Office for Domestic Preparedness*

Eugene Ryan

Chicago Fire Department

Porter Shellhammer

Sarasota County, Florida, Fire Department

Elaine Stewart-Craig

U.S. Army Soldier and Biological Command, Edgewood Chemical and Biological Center

John Sullivan

Los Angeles County Sheriff's Department

Alan Vickery

Seattle Fire Department

Ron Watson

Los Angeles County Fire Department

Ron Williams

Department of Justice, Federal Bureau of Investigation, Weapons of Mass Destruction Countermeasures

*transitioning to the Department of Homeland Security (DHS)

NIJ, DOE, FEMA, DHS, Environmental Protection Agency (EPA), and the NIST/OLES. As the various equipment SubGroups of the IAB determine minimum performance, quality, reliability, interoperability and other qualification requirements for their respective commodities, the SCC, representing regulatory, consensus and voluntary standards organizations, will endeavor to create national harmony by incorporating the requirements into their standards.

In the absence of appropriate standards for equipment deployed by emergency responders, the SubGroup members serve as liaisons to their respective organizations to encourage development, interoperability and harmonization of standards and/or performance specifications as an interim solution.

The importance of the SCC cannot be understated. In the environment of emergency response operations, emergency first responder personnel must be confident that their personal protective ensemble and equipment will afford them a certain level of protection. It is critical that compatibility and interoperability issues of equipment are addressed now, through nationally recognized standards, before the response to multi-agency, multi-jurisdictional CBRNE incidents. The SCC helps to prevent the response community from embarking on divergent paths to reach the same goal. It has the necessary expertise, at all levels, to reflect the work being done nationally.

To ensure that all agencies are working together to address common Counter-terrorism equipment issues, the IAB has facilitated the development of numerous InterAgency Agreements (IA) and Memoranda of Understanding (MOU) among federal, non-profit and private standards agencies. These agencies include NIOSH, NIST, OSHA, DoD, NIJ, SBCCOM, EPA, DOE, ANSI, and NFPA. These IA and MOU are critical to the development and use of standards and regulations in this arena.

INITIATIVES AND PROGRESS

The terrorist attacks on 11 September 2001 and the resulting activities and priorities of efforts by the IAB members precluded the publication of the 2001 Annual Report. The following summarizes the major initiatives since the publication of the 2000 Annual Report:

- Revised the IAB “Strategic Plan for Developing Chemical, Biological, Radiological, Nuclear, and Explosives Protective Equipment Standards,”
- Participated in the revision of the IAB Charter,
- Revised and updated the IAB standards development priorities list,
- Established ties with the Department of Homeland Security,
- Participated in the development, implementation, and adoption by the IAB of the first new standard in the suite of CBRNE equipment standards suite – NIOSH Chemical, Biological, Radiological, and Nuclear (CBRN) Standard for Open-Circuit Self-Contained Breathing Apparatus (December 2001),

- Facilitated the adoption of the first standards into the CBRNE suite by the IAB on 25 September 2002,
- Participated in publication, through the NIJ, of a five volume series of Guides for the Selection of Equipment for Emergency Responders (Detection Equipment-Biological; Detection Equipment-Chemical Agent and Toxic Industrial Material; Chemical and Biological Decontamination Equipment; Communications Equipment; and Personal Protective Equipment),
- Endorsed the free access via the NFPA web page to relevant NFPA standards regarding response, protective clothing and equipment, and training for CBRNE incidents, and
- Adopted a reporting process to be used by all SubGroups (explained below).

THE SCC AND THE REPORTING PROCESS

The role of the SCC is predicated on the way standards are identified and used by the first responder user community. Subject matter experts, members who participate within consensus standards making or regulatory organizations, and the first responder user community have based the process of referencing and or adopting standards within the IAB on work they do.

As the IAB has continued to evolve, work on particular standards that were a priority has either been completed, or is in process. As in many projects, inadequate communications among various interests and SubGroups has occasionally caused duplication of work and in some cases unnecessary expenditure of resources.

While the IAB has continually moved forward, the process of reviewing and evaluating information has been inconsistent. To provide the user community with an evaluation tool, and the manufacturers with baseline criteria from which to work, the SCC has adopted a process for standards reference. This process includes:

- An evaluation template will be used by all IAB SubGroups to provide recommendations to the SCC. The template will incorporate these SubGroup evaluation criteria:
 - Scope/Purpose
 - Certification/Re-certification
 - Testing
 - Test Methods
 - Materials, Components, and System
 - Inspection
 - Quality Assurance (i.e. ISO)
 - Labeling and Information
 - Compliance statement
 - Safety/use information
 - Performance Specifications and Limitations
 - Technical Data Packages
 - Selection, care, and maintenance

- Design Requirements
 - General Characteristics (global)
- Performance Requirements
 - Components
 - System (if applicable)
- Interoperability (if applicable)
- Intended Environment
- Annex
 - References
 - Supporting Text
 - Supporting Standards

The SCC will categorize its evaluation of the SubGroup's recommendations as:

- Recommended as written for reference
- Recommended for partial incorporation
- Recommended for modification
- Not applicable for use

A set of criteria to be used by the SCC to evaluate SubGroup recommendations on standards and performance specifications.

A template, developed and used by the PP&OE SubGroup, will be used by all the SubGroups in the next edition of the SEL. This template provides the first responder community with additional information on threat assessment, protection factors, referenced standards and additional information.

CURRENT PROJECTS

In this coming year, the SCC will:

- Identify existing test methods and standards that may be used for personal protective and operational equipment (PP&OE), detection and decontamination (D&D) equipment, and the interoperability of that equipment,
- Provide liaison regarding testing methods and certification requirements (including use, care, selection, inspection, and maintenance issues) to standards setting agencies and associations,
- Work with other SubGroups to develop basic minimum recommendations that build compatibility and interoperability for each type of equipment in the SEL,
- Work with other SubGroups to identify existing federal or consensus standards and performance specifications based on equipment task requirements for equipment in the SEL,
- Work with other SubGroups to identify existing equipment standards that need modified or adjusted for counter-terrorism response,
- Work with other SubGroups to define standards development priorities.

PRIORITIZED ORDER FOR DEVELOPMENT OF STANDARDS

As stated in the IAB Strategic Plan, the SCC is responsible for establishing the order of priority for developing or adopting standards. The following is the current prioritized list for standards development:

- Respiratory Standards
 - SCBA – Accomplished (see NIOSH and NFPA)
 - Air Purifying Respirators – Fiscal Year 2003
 - Escape Hoods- Fiscal Year 2003
- Detection Performance Standards and/or Performance Specifications
 - Chemical – Vapor Detection Fiscal Year 2003
 - Biological
 - Radiological/Nuclear – Fiscal Year 2003
 - Explosives
- Protective Clothing/Equipment – See PP&OE SubGroup Report
- Standard Decontamination Agents, Solutions, Materials and Equipment
- Performance and Interoperable Communications Standards
- Medical Respiratory Ventilators – See Medical SubGroup Report

These priorities will be continuously reviewed and adjusted during the year.

IAB ADOPTED PROTECTIVE CBRNE STANDARDS

As stated in the IAB Strategic Plan, the SCC is responsible for developing, maintaining, and publishing a list of IAB adopted CBRNE protective equipment standards. The following is the list of currently adopted CBRNE standards:

- NIOSH Chemical, Biological, Radiological and Nuclear (CBRN) Standard for Open-Circuit Self-Contained Breathing Apparatus (December 2001),
- NFPA 1951 – Protective Ensemble for Urban Search and Rescue Operations (2001 Edition),
- NFPA 1981 – Open-Circuit Self-Contained Breathing Apparatus for Fire and Emergency Services (2002 Edition),
- NFPA 1991 – Vapor-Protective Ensemble for Hazardous Materials Emergencies (2000 Edition),
- NFPA 1994 – Protective Ensemble for Chemical/Biological Terrorism Incidents (2001 Edition), and
- NFPA 1999 – Protective Clothing for Emergency Medical Operations (2003 Edition).

FUTURE STANDARDS AND PERFORMANCE SPECIFICATIONS EFFORTS

While it is important that funded work continue, the SCC realizes that some equipment standards may take years to develop. It is thus incumbent upon the SCC to assist the SubGroups in identifying and developing performance specifications, based on equipment tasks, to serve as interim guides for purchasers of equipment. In addition, the issue of equipment interoperability continues to be at the forefront of the

emergency first responder community. As part of a bid or performance specification, purchasers should specify the interoperability capabilities they want the equipment to have. In addition, they should research and consult with the other agencies with which they respond, such as mutual aid, law enforcement and CIST Teams, to ensure the compatibility, and if capable the interoperability of the equipment they intend to purchase. Only then will there be a progressive movement that will assist the first responders at the incident scene.

The main focus of the CBRNE program has been on the development of chemical and biological personal protective equipment. The first priority for development was for respiratory protection equipment standards, and this past year saw the first fruit of this program in the implementation of the NIOSH CBRN SCBA standard, which is also referenced in NFPA 1981.

NIOSH is continuing to work on additional respiratory protection standards. Currently, the projected implementation of additional standards is as follows:

- Air Purifying Respirators (APR) – April 2003
- Escape Masks – July 2003
- Powered Air Purifying Respirators (PAPR) – 2003
- Combination APR/SCBA – 2004
- Closed Circuit SCBA – 2004
- Escape SCBA – 2005
- Supplied Air Respirators (SAR) – 2005

NFPA published NFPA 1994, Standard on Protective Ensemble for Chemical/Biological Terrorism Incidents, in August of 2001. The IAB adopted this standard into the CBRNE suite in September 2002. Edgewood Chemical and Biological Center is conducting additional research on chemical and biological warfare agents' hazards, and their health effects on the responder. Natick National Protection Center, and is examining selectively permeable membrane technology. The NFPA Technical Committee currently has this standard under review, and it is anticipated that it will be significantly revised to reflect changes in technology and to better incorporate law enforcement requirements.

The NFPA is also revising NFPA 1221, Standard for the Installation, Maintenance, and Use of Emergency Services Communication Systems (2000 edition). Significant changes are being made to address interoperability issues for communication equipment, reverse 911 equipment and protocols for notification of the public, as well as geographic information system (GIS) interfaces for command and control capabilities. This document also incorporates reference to the architecture to support the Intelligent Traffic System (ITS) work being done by the U.S. Department of Transportation (DOT).

While not directly linked to efforts of the IAB, NFPA, with assistance from the United States Fire Administration, is promulgating Incident Command System roles and responsibilities for Command and General Staff positions. This initiative is a result of discussions with the U.S. Fire

Administrator, staff from the DHS and others to have one National Incident Command System. This project incorporates the use of Incident Management Teams that can provide management assistance locally, statewide, or nationally in the event of a CBRNE incident or other emergency. Response to such multi-agency/multi-jurisdictional incidents requires personnel who are trained and competent to manage incidents of this magnitude. NFPA 1561, Standard on Emergency Services Incident Management Systems, provides the underpinning necessary to carry out this mission.

The OLES managed standards program, which has been funded by NIJ in FY2001–2002, has resulted in the health and hazard assessments used by NIOSH to develop CBRNE SCBA and APR standards. These same assessments, as well as additional percutaneous assessments are being used to develop protective ensemble standards for the Law Enforcement community, and a chemical vapor detector standard. The OLES managed program is expected to significantly expand in 2003 to include radiological, nuclear and conventional explosive threats. There has been a considerable effort, organized largely by the DHS, DOE and the NIST Physics Laboratory, to commence revision and development of standards for radiation detection equipment, to include radiation pagers, portable instrumentation and portal monitors. The chemical/biological detection standards development program (initially funded by NIJ) being conducted at Edgewood Chemical and Biological Center (ECBC) will continue in 2003.

The DHS has shown increasing interest in the IAB and the CBRNE protective equipment standards development program. It is anticipated that these ties will be strengthened, and this can only serve to benefit the first responder community. ■

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Science and Technology Committee (S&T)

MISSION

The S&T Committee's mission is to identify interagency (federal, state, and local) First Responder research and development (R&D) requirements and innovative technologies (fieldable in the next 6 months to 5 years) that address chemical, biological, radiological, nuclear, and explosives detection; individual protection; collective protection; medical support; decontamination; communications systems; information technology; and miscellaneous operational support.

FUNCTION AND ROLES

The primary functions of the S&T Committee are to develop and update the IAB S&T Requirements Matrix for inclusion in the SEL, and to assess innovative government and industry-developed technologies. The IAB S&T Requirements Matrix identifies future technology needs for detection, individual protection, collective protection, medical support, decontamination, communications systems, information technology, and operational equipment.

INITIATIVES AND PROGRESS

During the year, the S&T Committee:

- Standardized Committee membership and re-energized its mission.
- Designated SubGroup co-chairs as mission area leaders responsible for detailed review and prioritization of S&T needs and projects,
- Reviewed industry submissions for the 2002 Marshall Convention,
- Reviewed the draft 2001 SEL to ensure future needs were included in the S&T Requirements Matrix,
- Reconciled the S&T Requirements Matrix with previous federal interagency R&D requirements efforts,
- Updated the S&T Requirements Matrix for publication in annual report,
- Prioritized Committee requirements for industrial and federal partners, and
- Coordinated input into federal requirements meetings to leverage IAB prioritized requirements submissions. ■

Personal Protective and Operational Equipment SubGroup (PP&OE)

MISSION

The Personal Protective & Operational Equipment (PP&OE) SubGroup has the challenging mission of addressing issues of personal protective and operational equipment standardization and interoperability, and making recommendations for this equipment based upon anticipated hazards, risk assessment, and job functions. Personal protective equipment encompasses both protective ensembles (garments, boots, gloves, hood, and respiratory protection) and operational equipment (equipment and references needed to sustain operations and provide general support during CBRNE response operations). The PP&OE SubGroup efforts must be closely coordinated with those of the other IAB SubGroups, especially the SCC.

FUNCTION AND ROLES

The PP&OE SubGroup is actively involved with or supports the development of personal protective equipment performance criteria and standards. Members of the PP&OE SubGroup are also members of the IAB SCC and the NFPA fire and emergency services protective clothing and equipment committees. These dual memberships serve to enhance partnerships between local, state, professional, federal and military organizations. Through these partnerships, protective clothing, equipment, expertise, and technologies are being developed. On-going military research and development programs are being leveraged for the benefit of the emergency response and public safety community.

INITIATIVES AND PROGRESS

The PP&OE SubGroup continues to diligently address a number of issues specific to WMD/CBRNE within their particular scope and discipline. The following are examples of the initiatives and progress made in the past year related to the SubGroup:

- In January, the SubGroup met in Las Vegas, Nevada. PP&OE coordinates its quarterly meeting to coincide with IAB's General Meeting. The PP&OE SubGroup elected Local/State Co-Chair and Federal Co-Chair for 2002. The Local/State Co-Chair will appoint an alternate as required to conduct SubGroup business.
- NIOSH/SBCCOM representatives presented information on the progress made on the hazard assessment and vulnerability analysis. The PP&OE SubGroup fully supports the newly released self-contained breathing apparatus (SCBA) live agent testing certification standard developed by NIOSH with support from SBCCOM.

The PP&OE SubGroup set a course for long range equipment priorities for PP&OE Standards, as follows:

- Respiratory Protective Equipment Performance Criteria and Standards Priorities
 - Acquire power air purifying respirators (PAPRs), negative pressure masks (air purifying respirators – APRs), and escape

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Protection

type respiratory protective equipment. The escape type respiratory equipment is of equal priority to APRs and is on a parallel program plan.

- Develop “Selection and Use Guidelines” by NIOSH and/or manufacturers based on threat assessments and vulnerability analyses for various emergency response and public safety missions and operations.
- Protective Ensemble and Accessories Performance Criteria and Standards
 - Revise NFPA 1994 Standard on Protective Ensembles for Chemical or Biological Terrorism Incidents, 2001 Edition, to address law enforcement and special operations user requirements,
 - Develop performance criteria and initiate development program for standards to meet explosive ordnance and improvised explosive device search, mitigation and disposal operations,
 - Develop user requirements and performance criteria for a biological threat response protective ensemble standard (independent of chemical threat requirements),
 - Develop protective clothing and equipment performance requirements for Urban Search and Rescue (USAR) Operation. Consideration must be given to additional protection requirements for USAR operations in chemical, biological and radiological threat environments. Baseline criteria from NFPA 1951 Standard on Protective Ensembles for USAR Team Operations, 2001 Edition,
 - Develop protective clothing and equipment performance criteria for emergency medical operations and hospital medical personnel, and
 - Finalize an agreement with Office of Justice Programs (OJP) representatives that identifies protective clothing and equipment procured under federal WMD grant programs. This agreement must meet current and future certification standards advocated by the IAB membership.
- The IAB supported PP&OE SubGroup participation in the March 1–3, 2002 NFPA Hazardous Materials Protective Clothing and Equipment Technical Committee Meeting in San Francisco, CA. The focus of the meeting was to revise NFPA 1994 to better address law enforcement requirements and other protective clothing technologies such as used by the military.
- Increase interaction with the Detection and Decontamination (D&D) SubGroup related to threshold detection levels for detection equipment. This is vital to identifying threats and selecting protective clothing and respiratory equipment.
- Increase interactions with the Medical SubGroup to identify and address PPE requirements for emergency medical and hospital personnel.
- Track and support the development of new protective technologies such as selectively permeable membranes (SPM). Provide User input

in design and configuration of prototype ensembles for various emergency response and public safety operations.

- Develop and propose PPE related programs to the Science and Technology Committee for funding.

In June 2002, the PP&OE SubGroup met in Los Angeles, California, following the 2nd Annual National Symposium and Exhibition on Terrorism Preparedness and Response. The report, submitted to the IAB Chair, included the following PP&OE efforts:

- Law Enforcement and Corrections Tactical Uniform Systems developed by SBCCOM (Natick) were addressed, specifically the one-piece coverall style uniform with water resistant, flame resistant fabric, which offers an easy don/doff closure system.
- The duties of the proposed Technical Committee on Electronic Safety Equipment for Fire & Emergency Services were outlined by the PP&OE members belonging to the NFPA. This committee will have the primary responsibility to establish requirements and documents for the design, performance, testing and certification of electronic safety equipment used by fire and emergency services personnel during emergency incident operations. The committee will be responsible for documenting the selection, care and maintenance of electronic safety equipment.
- The development of performance criteria and certification standards for law enforcement and emergency responder bomb suits was discussed. The NIJ Office of Science & Technology and the NIST-OLEs are sponsoring this effort. The Personal Cooling Systems Performance Criteria and Standards are also supported by the PP&OE SubGroup.

In June 2002, PP&OE and Detection and Decon Members attended a meeting in Pittsburgh, Pennsylvania, hosted by NIOSH, SBCCOM, and NIST. These principal agencies presented their progress in assessing respiratory and percutaneous protection needs of responders to chemical, biological, radiological and nuclear incidents. Included were their methods or models for developing hazard and exposure estimates, and their status in evaluating test methods and performance standards that may be applicable as future chemical biological, radiological, and nuclear respirator and protective ensemble standards or guidelines.

PP&OE members attended a public stakeholder meeting to discuss the following issues:

- Proposed approval standard concepts and testing processes for full-face piece air-purifying respirators suitable for use by first responders against CBRN agents,
- Concepts and priorities for the development and implementation of standards for other classes of respirators, and
- Research work to identify simulant materials for use as CBRN test surrogates for respirator research and development efforts.

In August 2002, the PP&OE SubGroup met in Chicago, Illinois, and addressed the following action items:

- Prioritization, advocacy and participation in protective clothing and equipment performance criteria and certification standards (specifically respiratory protective equipment like SCBA, PAPR, APR and escape hoods/masks) and selection and use guidelines,
- Restructure the PP&OE SubGroup Section of Standard Equipment List (SEL). This would include completely reformatting the SEL protective clothing and equipment section from OSHA Levels (A, B and C) to a more “user friendly” format based on Emergency Responder/Public Safety Operations format. This restructure is based on “user categories” of fire service, law enforcement, emergency medical and special function disciplines.

Law enforcement will include Responder, Tactical, Explosive Device, HazMat, Perimeter Control/Scene Control, and Crime Scene/Evidence Collection. Emergency Medical will include Responder Triage, Patient Decontamination, and Patient Care. Fire Service will include Responder, Entry/Hazmat, and Decontamination. Special Function will include USAR and Trades/Public Service. SubGroup efforts will include reformatting the Operational Equipment list.

- Revise the Annual Report PP&OE SubGroup Section to include structure modification and re-establish Mission Statement and narrative,
- Upload the PP&OE SubGroup Project Information on the IAB Web Site, and
- Proposed restructure of NFPA Standard 1994 Protective Ensembles for Chemical/Biological Terrorism Incidents, 2001 Edition. The NFPA Technical Committee on Hazardous Materials Protective Clothing and Equipment (FEA-HAZ), which includes PP&OE SubGroup members, has proposed redefining threat categories in 1994 from current Class 1, 2 and 3 to a Threat/Menu driven approach that could be more user friendly to the Emergency Response Community. A concept paper has been developed proposing threat categories of VAPOR, LIQUID, and PARTICULATE. The particulate category will focus on biological and radiological particulates and aerosols. High and Low durability requirements and Optional Flash Fire performance criteria also will be addressed. Correlation will be made to the restructure of the SEL described above.

GENERAL COMMENT REGARDING WEAPONS OF MASS DESTRUCTION

A Weapons of Mass Destruction (WMD) incident could involve a variety of threats and extend from “small scale” to extremely “large scale.” Threats could include explosives, fire, industrial chemicals, chemical warfare agents, biological warfare agents, and building collapse. Selection of protective clothing and equipment for crisis/consequence management and rescue/recovery operations will involve complex decisions by incident commanders and emergency responders. In some situations, availability of protective equipment and urgency during rescue may influence the selection process. The types of threats faced by military and emergency response personnel will be very similar, so every

effort should be made to leverage protective clothing and equipment expertise and technologies being developed and fielded under federal and military programs.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) STANDARDS DEVELOPMENT EFFORTS

a) **Approved and Released** – NFPA 1994, Standard on Protective Ensembles for Chemical/Biological Terrorism Incidents, 2001 Edition, was approved and released in September 2001. The Technical Committee on Hazardous Materials Protective Clothing and Equipment developed this standard. The standard defines three classes of protective ensembles for emergency services personnel exposed to victims or materials during assessment, extraction, rescue, triage, and treatment operations at or involving chemical/biological terrorism incidents.

Up-Coming Revision Process for NFPA 1994 – The Technical Committee voted to “short cycle” this standard to make revisions addressing alternative protective clothing technologies such as those being developed and used by the military. This process will address performance criteria for technologies like adsorptive materials and selectively permeable membranes. Focus will be given to chemical (industrial and warfare) and biological threats related to tactical law enforcement, emergency medical and urban search and rescue (USAR) operations. Primary objectives are to define performance criteria for operations other than fire and hazardous material operations and leverage current and future military protective clothing technologies. Support and participation from local, state and federal law enforcement representatives will be vital to this process.

b) **Completed, Approved and Released** – NFPA 1951, Standard on Protective Ensemble for USAR Operations, 2001 Edition, was completed, approved and released during this calendar year. The Technical Committee on Special Operations Protective Clothing and Equipment developed this standard. The standard establishes protection levels for emergency services personnel assigned to search, rescue, recovery and site stabilization operations for urban search and rescue (USAR) operations. Included are garment, helmet, boot and glove performance criteria. Protection against organic liquid and blood born threats is defined, as well as a limited level protection against thermal (flame) threats.

Future Consideration – The DoD is investigating the application of selectively permeable membrane (SPM) technology to USAR ensembles and chemical/biological protective ensembles. This is being done with support from industry partners, IAB members, and representatives from federal urban search and rescue teams located in New England. The Oklahoma City Memorial Institute for the Prevention of Terrorism (MIPT) is providing funding assistance. Leveraging this military technology could offer USAR personnel protection against

chemical and biological warfare agent threats, as well as dramatically improved protection against wet weather, while still offering a lightweight and breathable garment. This investigation is being conducted with limited resources and the IAB should consider a strategy to gain support to accelerate this program.

c) **In Review** – NFPA 1999, Standard on Protective Clothing for Emergency Medical Operations, is currently in a review and revision cycle with a proposed release date of 2003. The current standard defines protection requirements for personnel providing medical operations. The hazards include exposure to blood or other bodily fluids contaminated with infectious agents. Performance criteria for garments, gloves, footwear, and face protection are defined to minimize skin and mucous membrane contact with liquid-borne pathogens.

For Consideration – Emergency medical personnel responding to a chemical or biological warfare agent incident may be required to perform medical operations in a contaminated area and on contaminated victims. Careful consideration will need to be given to selection of protective ensembles based on risk assessment and threat identification. Protection levels such as those defined in NFPA 1994 Class 2 and 3 could perhaps be considered.

EXPLOSIVE ORDNANCE DISPOSAL (EOD)/BOMB SUIT PERFORMANCE CRITERIA

Development of a bomb technician protective ensemble standard is a priority with the IAB PP&OE SubGroup, NIJ, NIST-OLES and the bomb technician community. The on-going Operational Requirements Document (ORD) and test and evaluation on commercial ensembles developed under the DoD Advance Bomb Suit Program will be used as the starting point and foundation for this process. Enhanced protection against fragments, blast, shock and thermal threats as well as chemical and biological warfare agent threats will be addressed. Natick Soldier Center has the technical expertise in textiles, advanced materials, physiology, ballistic testing, systems integration, and military EOD ensembles to support NIJ and NIST-OLES during development of this performance standard. The National Bomb Squad Commanders Advisory Board (NBSCAB) is represented on the PP&OE SubGroup and will provide technical expertise to this initiative.

CHEMICAL AND BIOLOGICAL PERSONNEL PROTECTIVE EQUIPMENT (PPE) STANDARDS

Resources from the National Institute of Justice were provided through Memorial Institute for the Prevention of Terrorism (MIPT) were provided through NIST-OLES to SBCCOM for this multi-task program. The tasks have a close relationship to the on-going effort in respiratory protective equipment standards development being conducted by NIOSH with technical assistance from Edgewood Chemical and Biological Center. SBCCOM. Members of the PP&OE SubGroup from NIOSH and

Edgewood Chemical and Biological Center SBCCOM are actively involved with the respiratory standards development program. Details of that program are not included in this document.

SBCCOM's Edgewood Chemical and Biological Center (ECBC) is the program manager, under the direction of NIST, for the PPE and Detection Standards task. The FY01–02 tasks under the PPE equipment standards. The tasks under the PPE equipment standards (non-respiratory) effort are as follows:

- Task 1.** Define non-respiratory chemical agent PPE equipment requirements by performing hazard analyses and vulnerability assessments,
- Task 2.** Define chemical and biological agent levels that inflict a health hazard (non-respiratory) on emergency response workers,
- Task 3.** Decide whether the current test methods for PPE materials can be used as the standard and provide assessment of test requirements,
- Task 4.** Decide whether the current PPE ensemble test methods can be used as the standard and provide assessment of the test requirements,
- Task 5.** Recommend standards and tests to NIST-OLES,
- Task 6.** Support NIOSH with Public Forum Meetings,
- Task 7.** Support IAB in the analysis and development of PPE equipment user guidelines, and
- Task 8.** Provide management, technical and administrative support.

INVESTIGATION AND VALIDATION OF ADVANCED LIGHTWEIGHT PROTECTIVE CLOTHING SYSTEMS FOR EXPOSURE TO TOXIC INDUSTRIAL CHEMICALS AND HARMFUL MICROORGANISMS

This complimentary program is funded by MIPT/NIJ through NIST/OLES and conducted by DoD/SBCCOM. Funding for the two-year effort has been received by the Natick Soldier Center through its National Protection Center.

PERSONAL COOLING GARMENT TECHNOLOGY DEVELOPMENT

DoD/SBCCOM and MIPT have on-going R&D programs to develop personal cooling garments for soldier and emergency responder applications. The weight and insulative characteristics of protective ensembles have negative physiological effects on human beings and dramatically reduce mission performance time. The continuing development of the Air Warrior cooling system, MIPT Cooling Garment Program and SBCCOM Objective Force Warrior (OFW) will define performance criteria for personal cooling garment systems for future applications. At some time in the future the PP&OE SubGroup and the SCC will leverage military test and evaluation protocols to support the development of a personal cooling garment performance standard.

PROTECTIVE CLOTHING AND EQUIPMENT RESEARCH AND DEVELOPMENT PROGRAMS

Two new programs have been proposed that relate closely to the efforts of the PP&OE SubGroup. The Corrections Tactical Uniform System

(CTUS) and Integrated Law Enforcement Uniform System (ILEUS) are concepts developed by Natick Soldier Center to leverage military warrior systems programs. The objectives are to provide greatest protection, comfort and versatility for the law enforcement and corrections communities. The next generation uniform system can be tailored to meet different operational needs by leveraging old and new materials and textiles and generating the design and prototype. First generation prototype ensembles have been designed and fabricated with direct law enforcement and corrections user participation. IAB membership support to these efforts ensures emergency responder requirements are taken into consideration in prototype ensemble development. The Homeland Emergency Responder Operational and Equipment System (HEROES) was begun with initial funding from NIOSH's National Personal Protective Technology Laboratory (NPPTL), a team lead by the International Association of Fire Fighters (IAFF) and Natick Soldier Center. This project will explore next generation protective ensembles for fire and emergency services personnel leveraging military warrior systems programs such as OFW.

EQUIPMENT TECHNICAL CHALLENGES

The PP&OE SubGroup discussed challenges and enhancements for personal protection equipment. Among them were:

Ensembles

- Structural fire fighters ensemble technologies with improved protection against thermal hazards, are lighter in weight, and have increased breatheability to minimize the negative effects of heat stress,
- Personal cooling systems that offer cooling capability for durations greater than two (2) hours when worn under fire/hazardous materials,
- Protective ensembles that are lightweight and affordable,
- Protective ensembles for emergency response and public safety professionals which meet NFPA 1994, Standard on Protective Ensembles for Chemical/Biological Terrorism Incidents, 2001 Edition,
- The availability of next generation protective clothing technologies such as “selectively permeable membranes” that improve mission performance and duration,
- An explosive device protective ensemble which offers enhanced multi-hazard protection at reduced total ensemble weight,
- A USAR ensemble that incorporates protection against chemical and biological warfare agent threats for rescue and recovery operations in contaminated environments,
- Protective glove systems offering improved durability and dexterity for performing functions such as the operation of detection equipment and medical triage in unknown or high concentration threat environments,
- Improved footwear for USAR operations during long duration rescue and recovery operations.

Respiratory

- Multi-functional respiratory protection equipment systems which combine the characteristics of self-contained breathing apparatus (SCBA) and air purifying respirators (APRs) to give the user selection during operations,
- Multi-purpose air purifying canisters/cartridges to offer protection against all toxic industrial chemicals, chemical warfare agents, and biological threat agents,
- Air purifying respirator canisters with dramatically reduced breathing resistance while offering appropriate breakthrough times and mission durations,
- All equipment upgrades are certified by NIOSH,
- Physiological monitoring and location tracking system for fire and emergency services personal that is accurate, lightweight and affordable.
- Affordable respiratory protective equipment certified to NIOSH CBRN full face piece air purifying respirator and escape respirator standards.
- Hand free, wireless, lightweight, affordable personal communication system for intra-squad and inter-squad communications,
- Consolidated reference documents, information sources, and response operations decisions tools that are PDA formatted and website accessible,
- Contaminated patient wrap system permitting medical treatment during transport. ■

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Interoperable Communications and Information Systems SubGroup (ICIS)

MISSION

The ICIS SubGroup's mission is to identify available equipment/systems and shortfalls for the coordination and exchange of information (both verbal and data) before, during, and after a potential WMD-type event. Communication in its many forms is the element that ties together all of the different response assets and disciplines.

FUNCTION AND ROLES

A high degree of interaction between the ICIS SubGroup, other IAB SubGroups, and the user community is required to address the diverse needs of incident responders. Within the ICIS SubGroup, John Sullivan is the State/Local Co-Chair and Charlie Bell is the Federal Co-Chair. To meet the SubGroup's broad mandate effectively, it is organized into two mutually supporting mission area sections: *Communications* and *C4ISR* (Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance). The Section Leader for C4ISR is Joseph Booth, while Leo Guilmette leads the Communications Section.

The SubGroup has two overarching purposes: 1) review and clarify the SEL and 2) support the development of performance and interoperable communications standards (in coordination with the SCC).

The following items are of immediate concern to the SubGroup:

- Voice radio interoperability
- Secure communications, data exchange, data mining
- C4ISR tools including:
 - Using and developing the geospatial infrastructure (e.g., Geographic Information Systems [GIS])
 - Operational space (Opspace) visualization (including GIS and data compression for tactical information exchange)
 - Fate and transport (plume) modeling
 - Reachback tools
- Tactical telemetry (using wireless tools for data exchange)
- Functional requirements/mission analysis (refine to support the SEL)
- Clarification, standards development and identification of S&T needs
- Technology-doctrine interface.

INITIATIVES AND PROGRESS

During the past year, the ICIS SubGroup has identified issues involved in developing a geospatial and information infrastructure that supports situational awareness and a relevant common operating picture of the complex opspace of terrorism response operations. These include the importance of linking ICIS with the Object Management Group and the Federal Geographic Data Committee's Homeland Security Working Group to pursue common ends, as well as the need for standard doctrine for many facets of operations. Toward this end, ICIS has recognized the need for standardized information products including:

- Symbology (incident types, incident support facilities),
- Response information/target folders,
- Mechanisms for open source intelligence (OSINT) exploitation,
- Identification of communications equipment specifications,
- Standards/protocols for fusing tactical telemetry with ISR products.

In this area, the ICIS SubGroup has adopted a standard format (minimum information requirement) for site/venue specific terrain awareness, known as response information or target folders (this format is described in Figure 2). The ICIS has also identified the need for mission analysis toward development of fate and transport (plume models) standards. To promote interoperability, surety and sharing of threat information among local, state and federal agencies, ICIS has identified the need to develop broadly accepted operational security (OPSEC) practices and standard terminology to identify and categorize sensitive but unclassified data and communication (e.g., “law enforcement sensitive” or “public safety sensitive”).

Finally, ICIS has supported several initiatives to build effective national ICIS capabilities. For example, ICIS members have assisted the U.S. DOJ Office of Domestic Preparedness’ Pre-Positioned Equipment Program (PEP) Advisory Working Group providing advice and validation of the PEP communications requirements. ICIS has continued providing advice and identified user requirements for the Disaster Management Interoperability Service (DMI-S) Project. Support to DMI-S included setting user priorities, reviewing project timelines, approaches, and recommending priorities for implementation. During the past year DMI-S has been integrated into the FEMA “DisasterHelp.Gov” initiative. Specific issues and initiatives are further identified in the following discussion of each the ICIS main mission areas.

COMMUNICATIONS SECTION

The Communications Section of the ICIS SubGroup has continued its activities in maintaining the portion of the SEL that deals with connectivity and interoperability. Members of the committee have been researching new technologies in an effort to find possible solutions to the needs identified by the IAB general membership. Although innovative products have been found that take a step toward meeting the interoperability needs of local, state, and federal agencies, they have generally been considered interim technical solutions.

Digital transmissions are replacing traditional public safety communications methods, and network solutions are providing greater information exchange. The wireless “last mile” is the challenge to be addressed. Software defined devices can mimic cell phones and public safety radios while having the outward appearance of a handheld computer. The challenge in this area is to ensure the standards-setting boards overseeing these products understand and address the needs of public safety. Toward this end, ICIS has developed relationships with various organizations whose mission is standards development and implementation such as the Association of Public Safety Communications

Officials (APCO International) and National Public Safety Telecommunications Committee (NPSTC). The software-defined radio is an area in which public safety interoperability has not been addressed by either the group developing military products or their civilian counterparts who are developing the “next great cell phone.” The goal is to encourage the development of a multi-band public safety radio with multi-mode capability that will allow it to also communicate with wireless WAN/LAN systems.

While new technologies are being developed that overcome some of the technical barriers to interoperability, there are administrative barriers that need serious consideration. There is no common encryption/privacy protocol between federal and non-federal agencies. This means that agents of a federal on-scene unit must turn off their encryption and the local responders must turn off their privacy feature and both organizations must talk in-the-clear. This invites both casual and deliberate interference with incident site management.

The 700 MHz band appears to provide the best answer for future development of interoperability solutions for voice, broadband data exchange and even on-scene video. TV channels 63, 64, 68 and 69 may not be vacated in five years as prescribed by the Federal Communications Commission (FCC), and in the vicinity of the Canadian border they may never be vacated. Major regional communications systems cannot be implemented without interfering with these TV stations. Low power use of selected portions of the 700 MHz band may be feasible for on-scene interoperability. Engineering studies to determine which portions of the 700 MHz band can be used in specific areas are necessary.

C4ISR SECTION

The C4ISR Section’s focus is to identify, develop, and advocate a system of information acquisition and management using standardized analytical and distribution models to provide effective and integrated C4ISR support to the first responder community.

The C4ISR model is built to provide full integration of operational information inputs. The success of this attempt can be irrevocably tied to the ability of the user to place large amounts of information on the smallest number of operating platforms and his ability to share with other users in a common operating environment. The C4ISR team will attempt to expand the information acquisition and analysis capability of the first responder community. This is a command and control function that can be remotely performed provided there is a corresponding ability to deliver the information to the on-scene incident commander.

The C4ISR section will seek to identify information sources. This not only includes the identification of open source data, but also classified data sources that can be quickly rendered unclassified by technologies that “wash away” classified means of collection or limit distribution to small numbers of end users who need the information. Information management and sharing protocols will be examined with the intent to develop formats allowing quick distribution of relevant information.

A necessary step in the transmission of classified information from federal or military sources to the local and state police would arguably be the development of a common information classification system. The C4ISR committee will identify a model information classification system to facilitate the smooth transition of information from secure data bases into the hands of intelligent users of sensitive information at the state and local level.

Another necessary evolution in the transition of information involves graphic display of textual data. More specifically, standards of symbology must be developed and accepted into common use before the tremendous resources of Geographic Information Systems (GIS) and other mapping programs can support the first responder community. Using conflicting symbols to identify map locations wastes precious time in legend analysis and threatens to create more harm than help.

The first response community begins the protection cycle in the preparation phase, since identifying and hardening potential targets may serve as a preventative measure against possible terrorist acts. The C4ISR has adopted a response information/target folder template for communities to use in identifying targets. This preparedness feature is attached (see Figure 2) and ways of linking this tool into a comprehensive C4ISR platform will be further refined by the C4ISR Section over the next year.

Tactical telemetry, or the acquisition and monitoring of information reported by sensors or other electronic means, provides specific situation awareness information by design. However, it, too, is subject to the limitations of successful interface with other information sources and of display. The C4ISR Section will examine the standardization of interface and display platforms, including merging information from differing means of transmission and receipt.

For the first responder, modeling and gaming (or simulation) capability is necessary for on-scene decision support. The C4ISR Section will begin the work of providing standardization of performance specifications to meet the demands of the first response community. Identifying and designing specifications to incorporate technology advances in computing topography, weather and product qualities into a more sophisticated modeling program will provide the first responder another important tool to mitigate the effects of a possible WMD attack.

Working with the larger ICIS SubGroup, standards and sources for providing assured and secure voice and data communication may be developed. The future course of the C4ISR Section will be to augment the command and control capabilities of the first responder by identifying new technologies and to develop standards for existing technologies that serve to integrate massive yet manageable amounts of information into a decision support environment. This will deliver not only capability, but also knowledge superiority to the end of the line user, the incident commander.

Figure 2: Response Information/Target Folder Template

SITE (NAME):	Name of facility
LOCATION (ADDRESS, X STS., TG, GPS):	Address, cross streets, map reference and GPS coordinates
TYPE:	By Target Set/Venue (Describe)
HAZARDS (MSDS):	List site-specific hazards refer to Material Safety Data Sheets
DAY/NIGHT POPULATION:	People on site day & night
POC:	Name/title of contact person
PHONE/E-MAIL/WEB SITE URL:	List numbers/addresses
FLOORPLAN:	Attach floorplan diagram/map
PHOTOS:	Photos of site and access/egress
POWER/WATER/AIR (HVAC):	Locations/characteristics of utilities
DOWNWIND, DOWNHILL:	Describe potential impact on sites downwind/hill (evacuation potentials)
LIGHTING/WATER:	Describe lighting/water supply access
INTERMODAL LINKS:	Describe impact on other facilities
SYSTEMIC IMPACT:	Describe impact on site's ability to operate/sustain operations
PAST THREAT HX:	Describe prior threat history
SYMBOLIC VALUE:	Rate Low, Medium, High
KEY DATES FOR FACILITY:	Indicate key dates for the venue
CRITICALITY (PEOPLE/FACILITY):	Rate impact on people and facility as low, medium, high, very high, extreme should an attack occur
VULNERABILITY:	Rate vulnerability to attack as above
LZ, CP, S, D LOCATIONS:	Identify landing zone, command post, staging areas and decon corridor locations
COMMO. CAPABILITIES/LIMITATIONS:	Describe communication characteristics
MICROCLIMATES/PREVAILING WINDS:	Describe prevailing winds, typical weather
RESPONSE RESOURCE LIST:	Describe typical Law, Fire, EMS response resources

Note: This standardized format demonstrates a minimum information requirement for characterizing terrain (site/venue) awareness and geospatial information tags for use in a digital operational space visualization tool for incident response and planning.

ISSUES

Managing the interdisciplinary, multi-agency response to contemporary terrorism demands effective communications and information management. Responding to, mitigating, and interdicting acts of terrorism and their precursors is a demanding task that requires effective communications and information management strategies, tools and technology. Local, state, federal and military responders from several disciplines (law enforcement, fire service, emergency medical, public health, intelligence), as well various sectors of the nation's critical infrastructures, must work together. In doing so, they need to exchange information before, during and after individual attacks in order to fulfill both their own specialized missions and the common mission of protecting the public's safety and well-being.

Communications and information needs for addressing terrorism range from the vital need for voice radio interoperability at tactical levels of response, to the need for command centers and emergency operations centers to exchange digital information in common formats. Law enforcement and intelligence personnel also require common formats and data attributes to be able to effectively exchange information on pending threats and the current situation. The ICIS SubGroup is the IAB's mechanism for providing user requirements for communications interoperability, information surety and knowledge management. ■

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Detection and Decontamination SubGroup (D&D)

MISSION

The Detection and Decontamination (D&D) SubGroup provides input, direction, standards, and information to first responders on equipment used in chemical, biological, radiological, nuclear, and explosive and nuclear (CBRNE) incidents, focusing on intrusive and non-intrusive detection; monitoring, sampling and analysis; and methods to mitigate or dissipate a hazardous contaminate.

FUNCTIONS AND ROLES

The D&D SubGroup is responsible for addressing equipment identification, interoperability, and standardization in three complex areas of detection and decontamination: chemical warfare agents (to include 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 that provides the responder a reference to the type of equipment required to prepare for, respond to, mitigate, and recover from a CBRN incident.

- Facilitate the exchange of information between the first response community, government agencies and private sector entities, including sharing knowledge, expertise, and technology regarding the detection, identification, warning, and decontamination of CBRN incidents.
- Participate in the development and implementation of performance criteria, standards and test protocols for D&D response equipment, and to 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.
- Encourage governmental, military, and private agencies, as well as manufacturers, to sponsor priority research and development projects to satisfy local, state, and federal CBRN incident response equipment requirements.

INITIATIVES AND PROGRESS

Evaluation of Biological Detection Devices

Members of the D&D SubGroup are actively working with the Department of Health and Human Services and the Homeland Security Transition Team to develop a program for evaluating the accuracy and usefulness of immunoassay and other technologies, for use as presumptive identification systems in the field. We are also looking at polymerase chain reaction (PCR) technology in a mobile or fixed

laboratory configuration, for use by emergency responders. Moreover, the D&D SubGroup is working with public health, the CDC and the emergency response community to reach an agreement/understanding regarding emergency responders' responsibilities at the scene of a biological event. Specifically, we are developing protocols and procedures that allow for accurate field testing of suspicious material, followed by confirmatory lab identification of suspect biological material by the health community, and for timely presumptive identification information for the responder.

Development of Standards for Commercial Chemical Detection Devices

The NIJ provided funding through NIST to develop chemical and biological (CB) standards for commercial detectors used by the emergency response community. The U.S. Army Edgewood Chemical Biological Center (ECBC) is working with the D&D SubGroup to ensure the correct performance requirements are included in the standard. The first standard will focus on chemical point detectors. To ensure that chemical point detectors will function during a terrorist event, modeling work is ongoing to determine possible hot and warm zone concentrations. Concurrently, the medical community is quantifying health effects exposure levels to ensure that chemical detectors will read at the levels necessary to determine the personnel protection required for a given event. Once the modeling and analysis is complete we will develop a test protocol to ensure chemical detectors meet the necessary performance criteria. The first chemical detector standard will be released in 2003.

Development of Standards for Commercial Radiological Detection Devices

The DOE Office of Emergency Response is developing a Guide for Selection of Radiation Detection Equipment. The D&D SubGroup has reviewed draft copies of the work and will continue to work with DOE on this guide. Several D&D SubGroup representatives attended a workshop sponsored by NIST on October 21–23, 2002 to discuss radiological equipment standards. The Homeland Security Agency facilitated workshop sessions dedicated to gathering sources of information that will assistance in the development of the performance standards in addition to testing protocols and certification options.

As a follow on to the 11th Annual CIRMS (Council on Ionizing Radiation Measurements and Standards) Conference, an ANSI meeting was held in Gaithersburg, MD on December 9–10, 2002. The purpose of the meeting was to beginning drafting ANSI standards to establish performance and design criteria, test and calibration requirements, and operating and training instruction requirements for radiation detection instruments used for detection and measurement of radioactive substances for the purposes of interdiction and emergency response. Categories of equipment under consideration at this time were hand-held radioactivity instrumentation, pagers and electronic personnel dosimeters, and portal detectors. As the

Federal Co-Chair of the D&D SubGroup, Elaine Stewart-Craig attended the conference. This effort is being managed by the transitional Homeland Security Agency. The American National Standards Institute presented four radiological detections standards to the Homeland Security community on March 27, 2003.

Development of Test Methods for Biological Decontamination Procedures

The Canadian Anthrax Report's test data indicates a greater dispersion of (biological) particles in letters, as well as in the surrounding areas of mail sorting rooms. This data, along with the lessons learned from decontaminating the Hart Building, has led to a greater concern over the detection and decontamination of anthrax and biological agents. The Environmental Protection Agency (EPA) attended the D&D SubGroup meeting held during the September IAB meeting. The EPA representative invited the D&D SubGroup to collaborate with EPA on the development of a detector equipment list and on an interagency working group to develop a research plan to test and evaluate biological agents' decontamination.

Research and Development (R&D) Projects

To promote future development of promising chemical detection technologies, SBCCOM presented "User Needs" developed by the D&D SubGroup at a Chemical Detection R&D Conference in September 2002. The briefing encouraged private agencies and manufacturers to sponsor priority research and development projects to satisfy local, state, and federal CBRN incident response equipment requirements.

Massachusetts State Police/Explosive Ordnance Disposal Unit provided information to the group on hand held explosives detection equipment (HHEDE) for determination of presence of explosives in an improvised explosive device, concealed on persons, or in vehicles, packaged and cargo. They conducted a testing and evaluation effort for hand held explosive trace detectors which led to a deeper understanding of the civilian law enforcement "user" requirements for these types of technologies and equipment for operations such as airport physical security screening for vehicles, packages and cargo. There is also a Naval Explosive Ordnance Disposal Technology Division report entitled "Comparative Study on Handheld Explosive Detection Equipment – Final Test Report" dated January 2002, which may provide valuable information for the SubGroup in developing explosive detection equipment requirements and standards. ■

Medical SubGroup

MISSION

The Medical SubGroup’s mission is to provide guidance to the IAB regarding health and medical aspects of local, state, and federal standardization, interoperability, and responder safety to prepare for, respond to, mitigate, and recover from any incident by identifying requirements for chemical, biological, radiological, nuclear, or explosives (CBRNE) incident response equipment.

FUNCTIONS AND ROLES

The maximum number of injured persons that can be absorbed by the local medical community will vary according to resources. A community should plan to be self-sufficient for a minimum of 24 hours following the onset of an incident. There is no “one-size-fits-all” list of equipment to enable a community’s medical capability to prepare for an overwhelming event. Each community must evaluate its own capabilities, capacities, and state-of-preparedness. A typical study would include the following components:

- Evaluate vulnerability and threat to the community
- Evaluate levels of preparedness
- Examine existing capacity
- Identify solutions & make recommendations

INITIATIVES AND PROGRESS

Needle-free IV administration

During the treatment of a patient, many medications are typically administered through an intravenous (IV) line. Although OSHA mandated the development of needle-free systems, there currently exists no standard for the construction of the administration site, nor are the sites compatible from manufacturer to manufacturer. The Medical SubGroup plans to develop a national standard for needle-less, or needle-free, administration sites. This endeavor will also serve to further reduce the incidents of needle sticks in healthcare workers by removing the “sharps” from this step in patient treatment.

Power for medical equipment

Portable medical equipment runs on batteries, and every manufacturer designs power sources that are specific to its own devices. The Medical SubGroup plans to explore the possibility of interchangeable, commercial off the shelf (COTS) power supplies that would increase interoperability of portable medical equipment and decrease its logistic support requirements during protracted operations and mass casualty events.

Additionally, the connections from AC powered battery chargers are equipment specific. The Medical SubGroup is interested in the development of a standard that would identify a common voltage and amperage criterion, as well as a standard configuration for the connections between the charger and the equipment. This would greatly

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enhance interoperability and decrease logistic support requirements during protracted operations and mass casualty events.

Medication delivery “forms”/“packaging”

The Medical SubGroup is concerned about the different forms a particular medication takes, when marketed by its manufacturers and distributors. Examples include various concentrations in solution; single dose, pre-loaded syringes as opposed to multi-use vials; and compatibility of different diluents used. The interoperability issues surrounding needle-less administration further highlight this issue.

Ambulance work environment

The current GSA specifications for ambulances use an arbitrary criterion for the air exchange rate in the patient treatment compartment. At the time this criteria was included in the specification, no “science” was applied to reach the outcome. The Medical SubGroup is pursuing information to recommend the development of a standard that reflects current chemical information (from OSHA) and current biological and communicable disease information (from CDC). ■

The InterAgency Board SubGroup Co-Chairs

IAB Chair



Alan D. Vickery
Deputy Chief, Special Operations, Seattle Fire Department

A.D. Vickery is the Deputy Chief of Special Operations and Homeland Security Planning for the Seattle Fire Department. He has over 37 years of field operational experience in Fire Operations, Hazardous Materials, Heavy and Technical Rescue, Marine Firefighting, Fire and Arson Investigation, Advance CBRNE Medical Response, disaster exercise and special events planning. Chief Vickery responded to the Oklahoma City terrorist bombing and the 9/11 New York City terrorist attack as a US&R Task Force leader. He is a member of the Gilmore Commission, the Washington State Committee on Terrorism and numerous advisory and working groups dealing with Homeland Security. Chief Vickery is a nationally recognized advocate for First Responder preparedness issues.

Federal Coordinating Committee (FCC)



Ron Williams
Intelligence Operations Specialist, Federal Bureau of Investigation, WMD Countermeasures

Mr. Ronald C. Williams joined the Federal Bureau of Investigation as an Intelligence Operations Specialist in the WMD Countermeasures Unit within the Counterterrorism Division on February 11, 2002. In his position, Mr. Williams advises and assists in the development and implementation of plans concerning response to, and management of the consequences of, incidents involving nuclear, radiological, chemical and biological weapons. He has extensive experience in national policy development, emergency response management and operations, and interagency actions. Mr. Williams played a major role in developing the Presidential Decision Directive (PDD)-39 Domestic Guidelines which outline the interaction between FBI and DoD assets when responding to a WMD incident, the U.S. Government Interagency Domestic Terrorism Concept of Operations Plan (CONPLAN) which outlines the Federal response to WMD terrorist incidents and the integration of the Federal response with the State and local response, and the FBI WMD Incident Contingency Plan which provides response guidance to FBI field elements.

Standards Coordination Committee (SCC)



Stephen N. Foley
Senior Fire Service Specialist, National Fire Protection Association (NFPA)

Mr. Foley is a graduate member of the Institution of Fire Engineers. He is currently a Senior Fire Service Specialist with the NFPA and concurrently responds as an investigator for the NFPA Fire Investigation Response Team. He has over 26 years of experience in fire service with 12 years as a fire chief. In addition to serving as a senior instructor at the Commonwealth of Massachusetts Fire Academy and Massachusetts State Police Academy, Mr. Foley continues to instruct as an adjunct faculty member at the National Fire Academy, British Fire Service College, United Kingdom, and at the O'Brien Institute, Dublin, Ireland.

Mr. Foley holds a Bachelor's Degree in Fire Science Administration and a Master's Degree in Management. He is a graduate of both the Executive Fire Officer Program at the National Fire Academy and the Senior Executive Program, Kennedy School of Government at Harvard University. Mr. Foley has authored Fire Service Books on Occupational Safety & Health, Incident Command Systems, and Emergency Service Organization and Deployment.



Kathleen Higgins
Director, National Institute of Standards & Technology Office of Law Enforcement Standards (OLES)

Kathleen M. Higgins, Director, Office of Law Enforcement Standards, NIST, holds a B.S. in Chemistry from the University of Rhode Island and a Master's degree in Forensic Chemistry from Northeastern University. Her professional experience includes over fifteen years as the analyst of record in more than 2000 criminal and civil cases; supervision of the Criminalistic Section of the Massachusetts State Police Crime Laboratory; the founding and directing of K-Chem Laboratories, a private laboratory providing testing and evaluation of evidentiary materials; management and coordination of graduate and undergraduate forensic science programs at Northeastern University; and, materials research and development related to security, environmental and toxicological issues for the U.S. Postal Service. Ms. Higgins has been an active member of several professional societies, including the International Association of Arson Investigators (Past President – Massachusetts Chapter) and the American Academy of Forensic Sciences where she was elected a fellow in 1984.

Science and Technology Committee (S&T)



Vincent J. Doherty
*Captain, Hazardous Materials Operations, Fire
 Department City of New York*

Captain Vin Doherty is a 22 year veteran of the FDNY and is presently the Executive Officer of Haz Mat Operations and the former Company Commander of Haz Mat 1, the premier hazmat response unit for NYC.

Captain Doherty holds a Bachelor of Science Degree from St. John's University and is currently pursuing a Master's Degree in Homeland Security from the Naval Postgraduate School, CA, and is a contract instructor for the IAFF, NFA and the FDNY. Captain Doherty is the Chairp for the Science and Technology Subgroup of the InterAgency Board for Equipment Standardization and Interoperability and a member of NYC's FEMA US&R Task Force 1.

Captain Doherty is the Commanding Officer of Hazardous Materials Company #1 and a 20-year veteran of the FDNY. He has 12 years experience in Hazmat 1 as a charter member, a Lieutenant, and Captain of the unit, and he is a member of NYC USAR TF-1.

Captain Doherty holds a Bachelor of Science Degree from St. John's University. He was a Research Chemist for Fisher Scientific prior to his fire service career. He is also a contract instructor for the National Fire Academy, CRA, and a subcontractor for RPI Corporation (Topoff 2000).



Tracy Cronin
*Chemical Biological Program Manager, Technical Support
 Working Group*

Ms. Cronin is a program manager for the Technical Support Working Group (TSWG). She provides management and technical oversight for the execution of the TSWG Chemical, Biological, Radiological, and Nuclear (CBRN) Countermeasures rapid research and development program. Ms. Cronin has over 15 years experience developing and evaluating chemical/biological capabilities for Department of Defense and the federal interagency Combating Terrorism community.

Ms. Cronin received her Bachelors degree in Mathematics from the University of Utah. She will receive her Masters degree from The George Washington University in Operations Research in May 2003.

Personal Protective and Operational Equipment



Ronald D. Watson
Battalion Chief, Los Angeles County Fire Department

Battalion Chief Ron Watson is a 17-year veteran of the Los Angeles County Fire Department. During that time he has worked as a firefighter, paramedic, apparatus engineer, and captain. He has a background in field operations, special operations, hazardous materials, fire prevention, communications, and command and control.

Chief Watson's present responsibilities include that of Terrorism Preparedness Coordinator for the Los Angeles County Fire Department, focusing on training and equipping all Department members in preparation for incidents involving weapons of mass destruction.

Chief Watson holds a Bachelor's Degree in Fire Administration and Public Administration. He is a member of the Los Angeles County Terrorism Working Group (TWG) and the Los Angeles County Terrorism Early Warning (TEW) Group.



William E. Haskell III
Technical Program Development Manager, U.S. Army Natick Soldier Center, National Protection Center

Mr. Haskell is an engineer at the U.S. Army Natick Soldier Center (NSC) located in Natick, MA. Bill is the Technical Program Development Manager for the NSC National Protection Center. His responsibilities include initiating partnerships with non-traditional customers in the public safety and emergency response community. He has been the primary DoD representative responsible for building partnerships with the emergency response community, federal departments and DoD organizations. He serves as the military representative and voting member to the National Fire Protection Association's (NFPA) Technical Correlating Committee on Fire and Emergency Services Protective Clothing and Equipment (FAE-ACC), the Technical Committee on Hazardous Materials Protective Clothing and Equipment (FAE-HAZ) and the new Technical Committee for Integrated Electronic Safety Equipment. Bill is an Army representative to the DoD/DOJ InterAgency Board (IAB) for Equipment Standardization and Interoperability. He is the Federal Co-Chair of the IAB's Personal Protective & Operational Equipment (PP&OE). Other affiliations include membership on the National Technology Transfer Center's – Emergency Response Technology Program's (NTTC-ERTP) Advisory Council. Early in his federal career he pioneered the development and application of polymer composite and ceramic materials for ground combat vehicles and helicopter structures. He also worked with the U.S. Secret Service in the development and fabrication of advanced armor systems for vehicles and executive protection. Bill received an undergraduate degree in Civil Engineering (1978) and a Master of Science in Plastics & Textiles Engineering (1981) from the University of Massachusetts at Lowell and is a member of the Army Acquisition Corps (AAC).

InterOperable Communications and Information Systems



John Sullivan

Sergeant, Emergency Operations Bureau, Los Angeles County Sheriff's Department

John P. Sullivan is a researcher and practitioner specializing in conflict studies, terrorism and urban operations. He is a sergeant with the Los Angeles County Sheriff's Department where he coordinates the Los Angeles Terrorism Early Warning (TEW) Group. He holds a Bachelor of Arts in government from the College of William and Mary and a Master of Arts in urban affairs and policy analysis from the New School for Social Research. He is author or co-author or editor of *Policing Transportation Facilities*, *Policing a Multicultural Community*, *Jane's Unconventional Weapons Response Handbook*, *Jane's Facility Security Handbook*, *Emergency Preparedness for Transit Terrorism* and over 40 articles or chapters on terrorism, policing and emergency response. These have appeared in *Networks and Netwars*, *Non-State Threats and Future Wars*, *Australian Police Journal*, *The Police Chief*, *Law Enforcement News*, *Terrorism, Violence, Insurgency Report*, *Crime and Justice International*, *New England Journal of Human Services*, *Transnational Organized Crime*, *Small Wars & Insurgencies*, *The Tactical Edge*, *Armed Forces Journal International*, *Marine Corps Gazette* and *Prehospital and Disaster Medicine* as well as other journals.



Charles R. Bell

Program Manager, Marine/NBC, U.S. Marine Corps Systems Command

Mr. Bell, one of the four founding members of the IAB, serves as Chief, Defense Consequence Management Systems Office (DCMSO) assigned to the Program Manager NBC, U.S. Marine Corps Systems Command, Quantico, Virginia. The office is responsible for the Life Cycle Management of Consequence Management systems and equipment for numerous DoD organizations assigned primary or secondary missions in support of local authorities in the event of a terrorist attack using WMD and serves as the operational manager for the Office of Domestic Preparedness Prepositioned Equipment Program. The DCMSO also assists in the transfer of technology to local, state, and federal response organizations and the integration of military forces into response planning.

Mr. Bell holds a Bachelors Degree in Economics and a Masters Degree in Education from the University of Southern Mississippi. He is a graduate of the New York City Fire Department Hazardous Materials Technician (HAZTECH) Course, Northern Virginia Criminal Justice Academy Special Weapons and Tactics (SWAT) Course, and the DoD Emergency Preparedness Course.

Detection and Decontamination



Gene Ryan
Chief Hazardous Materials, Chicago Fire Department

Chief Ryan is a 21-year veteran of the Chicago Fire Department with 14 years of Hazardous Materials experience. During that time, he has worked as a firefighter, apparatus engineer, Lieutenant, and Captain. He has a background of field operations, special operations, fire prevention, communications, and command and control. Chief Ryan is a hazardous materials instructor for the University of Illinois, Illinois Fire Service Institute, and the National Fire Academy. Chief Ryan is a member of the Illinois Fire Service Instructors and the Illinois Department of Public Health Terrorism Task Force.



Elaine Stewart-Craig
Program Manager, U.S. Army Soldier and Biological Chemical Command, Edgewood Chemical and Biological Center, Homeland Defense Business Unit

Mrs. Stewart-Craig is a chemical engineer who has worked for SBCCOM's Edgewood Chemical and Biological Center for 20 years. Her current assignment is Program Manager for the development of Chemical and Biological Standards for commercial equipment, including protective ensembles and detectors, to be used by the emergency response community in the event of a terrorist attack. This program is a joint effort between SBCCOM-NIOSH-NIST and is funded by NIJ. She began her career in the personnel protection area, designing and producing gas masks and filters for the military. She has been involved with quality assurance, strategic planning and future business development for the Edgewood Chemical and Biological Center. In 1995 she began work on what is now known as the Domestic Preparedness Program, and has been in the homeland defense business area ever since. Mrs. Stewart-Craig earned her B.S. in Chemical Engineering from the University of Virginia, and a Masters of Business Administration from Loyola College.

Medical SubGroup



Porter T. Shellhammer
Battalion Chief, Sarasota County, Florida, Fire Department

Porter T. Shellhammer is a Battalion Chief, Sarasota County Fire Department. Chief Shellhammer has over 28 years experience in the fire-rescue services as a firefighter, paramedic, Company Officer, and Command Officer. He has a Bachelor's degree in executive management and an associate degree in fire science. He is an instructor for the National Fire Academy, and co-developer of the NFA's Emergency Medical Services: Special Operations course. He was co-developer of the National Terrorism Preparedness Institute's Medical Strategies for Weapons of Mass Destruction course. In February of 2002 he worked with the Park City Fire Service District as a Plans Section Chief for the 2002 Winter Olympic Games.



Paul D. Kim, MD
Veterans Administration

Dr. Kim has been involved with crisis management emergency preparedness since 1985. He graduated from Fordham University with a BS in Psychology and received his Doctor of Medicine from the University of Juarez, Mexico. During Operation Desert Shield/Storm, Dr. Kim was appointed as the Emergency Preparedness Coordinator for the Stratton Department Veterans Affairs Medical Center. Dr. Kim is currently an active member of the Management of Disturbed Behavior National Task Force of the Department of Veterans Affairs and maintains a Master Trainer designation.

Due to his extensive experience in preventing violence at all levels, Dr. Kim was appointed Co-Chair of a four-county Anti-Stalking Task Force based in the Capital District of New York State. The primary goal of the task force is creating survivors from stalking victims and prosecuting the perpetrators. In response to the 9/11 attacks, Dr. Kim was directly assigned to the Emergency Operations Center for the City of New York in the Health and Medical cell. Dr. Kim spent 51 days working in New York and in many other areas of the city where he assisted the city, the State of New York and the federal government in responding to the health and medical needs of the victims and survivors. ■

