



National Personal Protective Technology Laboratory

Homeland Security

Collaboration, Innovation and Standardization

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October 1, 2003



Our mission . . .



To prevent work-related illness and injury by ensuring the development, certification, deployment and use of personal protective equipment and fully-integrated, intelligent ensembles.

Congressional Direction

- ...the need [exists] for design, testing and state-of-the-art equipment for this nation's... **miners, firefighters, healthcare, agricultural** and **industrial workers**...
- ...to carry out research, testing, and related activities aimed at protecting **workers**, who **respond** to public health needs in the event of a **terrorist incident**
- ...to organize and implement a **national** personal protective equipment **laboratory**

Senate Rpt. 16-293- Departments of Labor, Health and Human Services, and Education and Related Agencies
Appropriation Bill, 2001 Filed, Under Authority of the Order of the Senate of January 6, 1999

Strategic Research Program

- Respiratory protection
- Ensembles – System integration
- Sensors – Technology development
- Human performance



Respiratory Protection

- NIOSH respirator certification program
- CBRN respirator standards development
- CBRN respirator certification activities



NIOSH Respirator Certification Program



US, Australia, Brazil, Canada, Chile, China, Denmark, England, Finland, Germany, Italy, Japan, Korea, Mexico, New Zealand, Taiwan, Thailand, Sweden

CBRN Respirator Standards Development

- **Early Efforts**
 - Understanding emergency responder protection needs
 - Building partnerships
- **Emergency responder protection needs**
 - NIOSH-DOD-OSHA Chemical-Biological Respiratory Workshop & Report (March 1999)
 - Interagency Board Standards & PPE Committees
 - Firefighter self-contained breathing apparatus urgently needed
 - APRs (gas masks) also needed for warm zone
- **Partnerships**
 - NIST, DOJ, US ARMY, OSHA, DHS
 - NFPA, IAB, IAFF, IAFC, ISEA

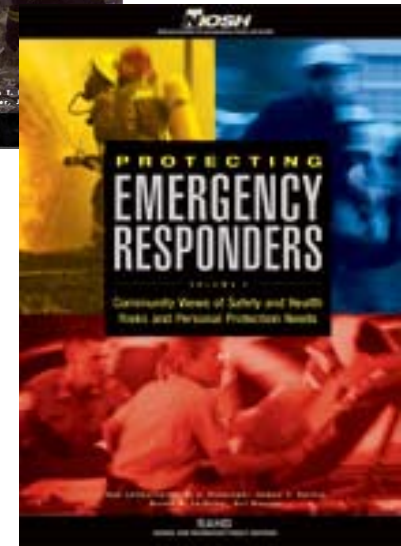
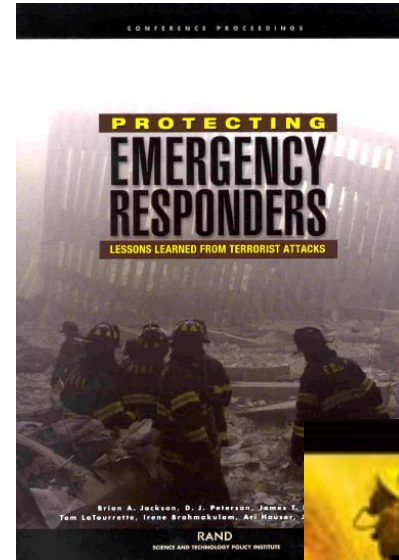


CBRN Respirator Standards Development

- **Emergency Responder PPE needs**
 - Firefighter self-contained breathing apparatus urgently needed
 - APR (gas masks) also needed for warm zone
- **National Science Foundation/RAND**
 - NYC public meeting – December 2000 Critical missions analysis
 - Structural collapse PPE guidelines
- **Rand report 2003**
 - CBRN respirator guidelines
 - Emergency responder technology roadmap
 - Guidelines for structural collapse

Link to Rand report:

<http://www.rand.org/publications/MR/MR1646>



CBRN Standards Development Process

- **CBRN Standards Development Process**
 - Hazard analysis
 - Human/environmental factors
 - Operational/performance requirements
 - Standards definition
 - Test requirements
 - Testing/validation
 - Quality assurance provisions
 - **Public Forum**

CBRN SCBA Standard

- **Implemented January 2002**
- **Three tiers of technical requirements**
 - 42 CFR NIOSH approval
 - National Fire Protection Agency (NFPA) 1981
 - Special CBRN tests:
 - Laboratory respiratory protection level (LRPL)
 - Chemical warfare agent tests (GB & HD)
- **15 SCBA models—3 manufacturers**
- **CBRN SCBA upgrade program since March 2003**

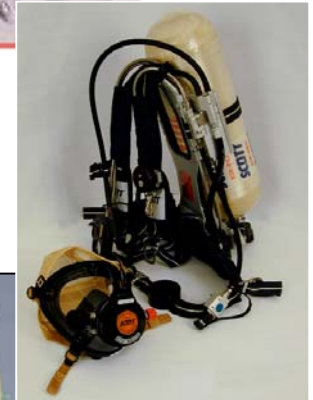
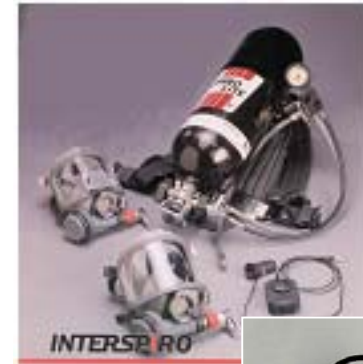


CBRN NIOSH Approved SCBA

- Interspiro, USA — Six approval numbers
- Scott Health & Safety — Five approval numbers
- Mine Safety Appliances Company (MSA) — Four approval numbers
- First CBRN SCBA Upgrades issued September 2003
 - Scott Health & Safety — Three approval numbers

Approved models are identified by TC-number at:

<http://www.cdc.gov/niosh/npptl/cbrncheck.html>



CBRN APR Standard

- **CBRN APR – Implemented March 2002**
- **Technical requirements include:**
 - Multi-hazard protection
 - Chemical warfare agent testing
 - Interchangeable filters and masks
 - High demand (physiological)
- **Special CBRN APR requirements**
 - Systems CWA penetration/permeation
 - Laboratory respiratory protection level (LRPL)



CBRN Escape Hood Standard

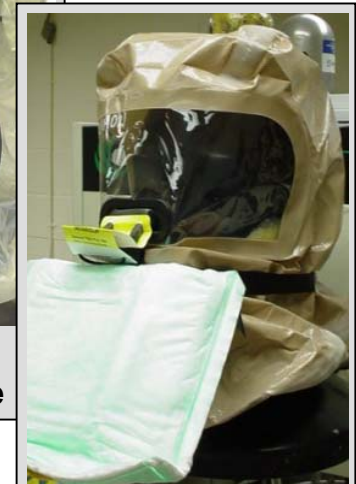
- CBRN APR – Implementation in October 2003
- Technical requirements include:
 - Multi-hazard protection
 - Systems CWA penetration / permeation
 - Breathing gas/air – CO₂ and O₂
 - Laboratory respiratory protection level (LRPL)
 - High demand (physiological)
- NIOSH will accept applications effective November, 2003



Draeger
DefendAir



MSA Response



Survivair
Quick 2000

CBRN Respirator Standards

- **Standards Completed**

- SCBA – January 2002
- SCBA upgrades – March 2003
- Gas masks – March 2003
- Escape sets (APR) – October 2003



- **Standards in Development**

- PAPRs – March 2004
- Integrated SCBA/PAPR – Dec. 2004
- Integrated SCBA/APR – October 2005
- Closed circuit SCBA – June 2006



Quality Partnerships Enhance Worker Safety & Health



Thank you !



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