

**Miller, Diane M. (CDC/NIOSH/EID)**

---

**From:** HAccreatec@aol.com  
**Sent:** Wednesday, March 19, 2008 1:13 PM  
**To:** Funk, Renee (CDC/NIOSH/OD); NIOSH Docket Office (CDC)  
**Subject:** Docket #126, Town Hall Meeting March 23, 2008  
**Attachments:** NIOSHpres1.pptx

Attention: Dr. Renee Funk

Dear Dr. Funk,

My name is Hans Almqvist. I have over 30 years experience managing SCBA companies (AGA Spiro and Interspiro) in Europe and USA and have been part of PPE standardization both in CEN and NFPA. I saw NIOSH's Town Hall Meeting as an excellent opportunity to present some of the ideas for improved First Responder safety and performance I have collected over the years and have accordingly put together a presentation. Unfortunately, due to other commitments, I will not be able to attend the meeting but send my presentation anyway and hope it will be considered in some way. If of interest, I am available to give additional comments by phone or at a separate meeting.

Regarding requested priorities of your Draft Goals I give my vote (in order of priority) to Goals 2, 8 and 6. This is based on, in my opinion, the urgent need to improve safety and performance for the First Responders. It can not be acceptable in our time that over 100 people die and thousands get injured in the line of duty each year, not to speak about the shortcomings in the service to the public.

It seems to me that the huge number of Goals would spread NIOSH's resources too thin. I also think that some of the Goals should fall under other agencies', like NFPA, EPA, other CDC units, etc., responsibility. R&D efforts would normally be the responsibility of the safety products manufacturers. However, what has happened the last few years is that certifications to NIOSH/CBRN, NFPA and other standards have absorbed most of the companies' R&D resources, leaving little room for product development. It is therefore welcome if some of the basic research efforts could be run by NIOSH for everyone to share.

My best wishes for a successful meeting! I hope to get in touch with you at a later date. Thank you for your time!

Sincerely,

Hans Almqvist  
Createc Consulting LLC  
203 215 6824

---

Create a Home Theater Like the Pros. [Watch the video on AOL Home.](#)

# Emergency Preparedness and Response NIOSH's Town Hall Meeting March 25, 2008

Comments by:  
Hans Almquist, Createc

## **Suggested priority**

**In order to give the fastest possible assistance to First Responders in the areas of SAFETY and PERFORMANCE, concentration should be given to goals:**

- 2. Personal Protective Equipment**
- 8. Environmental and Biological Monitoring of Terrorism Agents.**
- 6. Surveillance**

## General comment

**First Responders are Heroes in the sense that they risk their lives to save others, but their SAFETY and PERFORMANCE are totally dependent on the tools, training and supervision they are given .**

# Comments to suggested Number 1 Priority, Personal Protective Equipment

## Key Areas:

Reference: Goals 2.8 and 2.9

- SCBA with longer service time
- Reduction of risk for Heat Stress
- Improvement of Physical Fitness

## SCBA with longer service time

### Problem:

50 years ago, the US First Responders used SCBAs with rated service time 30 minutes, effective service time less than 20 minutes, weighing 30 lbs.

To day they use SCBAs with the same service time, weighing 22 lbs., but with more extra equipment.

SCBAs with longer service time rejected due to weight.

## **SCBA with longer service life (continued)**

**With positive pressure, better service life alarms, PASS, communication, etc. the safety has improved, but the short service life has the same consequences as 50 years ago:**

- “Air management” takes concentration from tasks at hand.**
- First Responders at risk when trapped or disorientated.**
- Performance questionable at the end of the service life.**

## **SCBA with longer service life (continued)**

### **Realistic solution:**

**Utilize available oxygen enrichment air or super critical air technology to build a SCBA with 60 minutes service life at a weight of 22 lbs.**

**Price: Somewhat increased ground support.**



## **SCBA with longer service time (continued)**

**With twice the SCBA service time, unchanged weight, and unchanged work shift duration, the SAFETY and PERFORMANCE would improve considerably.**

## Reduction of risk for Heat Stress

### Problems:

Due to hard work and the protective ensemble's restriction to vent out heat and humidity, the body temperature can be elevated to dangerous levels. Both **SAFETY** and **PERFORMANCE** are impaired.

If Heat Stress level (approx. 102 F) is exceeded, several hours are needed for recovery.

## **Reduction of risk for Heat Stress (continued)**

### **Realistic solution:**

**Implement lightweight cooling devices for body parts with good heat transportation capability, preferably the extremities, to reduce body heat during a shift.**

**Change or recharge during breaks.**

# Improvement of Physical Fitness

## **Problem:**

**First Responders do not always have the Physical Fitness level needed for optimum SAFETY and PERFORMANCE.**

## **Improvement of Physical Fitness (continued)**

**Realistic solution:**

**Develop and implement simple and low-risk exercise and measuring methods for Physical Fitness.**

**Example: Program developed for the US Air Force First Responders with goal set at 45 ml oxygen uptake per minute and kg body weight.**

## SUMMARY

**By developing/implementing:**

- **60 minute/22 lbs. SCBA**
  - **Body temperature under 102 F**
  - **Physical Fitness 45 ml oxygen/minute, kg**
- both SAFETY and PERFORMANCE would improve considerably leading to less fatalities and injuries, and improved service to the public.**