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From: Spelce, David L. (CIV) [David.Spelce@med.navy.mil]
Sent: Monday, March 24, 2008 7:17 AM
To: NIOSH Docket Office (CDC)
Subject: 123 - Reevaluation of NIOSH limitations on and precaution for safe use of positive-pressure closed-circuit SCBA

Attachments: NIOSH CC SCBA Docket 123 Rev 2.doc



NIOSH CC SCBA
Docket 123 Rev 2...

Reference Docket Number NIOSH-123

To: NIOSH Docket Officer

My comments are provided in the attached file for your consideration.

Dave

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**COMMENTS ON
CC SCBA O₂ Prohibition--NIOSH Docket Number 123 January 2008**

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- Ref: (a) NIOSH Document for Public Review and Comment: Positive-Pressure Closed-Circuit Self-Contained Breathing Apparatus Docket #NIOSH-123 [FR 73(17):4578-4579. 25 Jan 08].
- (b) NIST Technical Note 1484. A Computational Model of Dissipation of Oxygen from an Outward Leak of a Closed-Circuit Breathing Device. June 2007.

The test methods proposed in reference (a) involve heat, flame, and flame engulfment testing on positive pressure CC-SCBA that are in original, intact condition. Likewise, reference (b) used computational fluid dynamics to investigate simulated respirator leaks on undamaged positive pressure CC-SCBA in a firefighting environment. This study was designed to evaluate the potential danger under worst case conditions, and used a representative leak (about 1 mm thick and 43.6 mm long - larger than a pinhole leak but not catastrophic in extent) along the outer seal of the facepiece just above the temple region. Per reference (b), "Under conditions of pure oxygen flowing into pure fuel, the flammable region is very small and disappears when the leak is closed off."

We disagree that the testing methods represent the worst case scenario in a flammable firefighting situation. Rather, consider simulating the worst case scenario as one in which the lens of the firefighter's facepiece is compromised (i.e., loss of the facepiece lens). In this situation, positive pressure inside the facepiece would force 100 percent oxygen from the SCBA into the flammable atmosphere directly in front of the firefighter's face. This could cause ignition - a catastrophic event for the firefighter. In addition, if positive pressure CC-SCBA cannot pass this worst case testing, recommend that NIOSH/ NPPTL continue to limit the use of positive pressure CC-SCBA that use pure oxygen breathing gas to mines and nonflammable atmospheres which do not involve exposure to open flames or high radiant heat.