

**ATTACHMENT 20**

**Statement by Michael Kay, Engineering Manager, Ocenco, Incorporated**

**COMMENTS TO PROPOSED RULE ON APPROVAL TESTS AND  
STANDARDS FOR CLOSED-CIRCUIT ESCAPE RESPIRATORS**

**73 Federal Register 75027, December 10, 2008**

**RIN: 0920-AA10**

**42 CFR pt. 84**

**NIOSH Docket #005**

**Prepared by Ocenco, Incorporated**

**April 10, 2009**

**Statement of Michael Kay  
Engineering Manager  
Ocenco, Incorporated  
April 10, 2009**

RIN: 0920-AA10

42 CFR pt. 84: Proposed Rule on Approval Tests and Standards for Closed-Circuit Escape Respirators

Docket #005 Public Comments

73 Federal Register 75027, December 10, 2008

I am presenting this statement in support of comments submitted by Ocenco, Incorporated on the proposed rulemaking for Approval Tests and Standards for Closed-Circuit Escape Respirators published in the December 10, 2008 Federal Register. (73 Fed. Reg. 75027).

I am the Engineering Manager with Ocenco, Incorporated, and have been striving to increase worker safety through respiratory protection for 25 years. I am responsible for the testing and certification of self-contained escape breathing apparatus used in mining, naval and commercial ships, and industrial applications worldwide, and have observed use of self-contained respirators in these environments on literally hundreds of occasions. I co-developed the first commercially available Automated Breathing Metabolic Simulator (ABMS) in use by NIOSH, Aberdeen Proving Grounds, and the United States Navy. I also co-developed the M-20.2 EEED currently in service onboard US and other international navy ships. I have developed a low-cost expectation trainer that allows coal mines to comply with the Mine Safety and Health Administration Emergency Mine Evacuation Final Rule, and a ratcheting hand wheel that prevents a firefighting SCBA cylinder connection from losing seal. Based on the foregoing, I consider myself to be an expert in respirator design, selection and performance. Please see my attached C.V.

Based on my training and experience, I would like to make the following points.

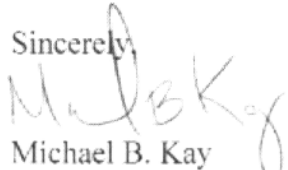
1. Through personal observation, I know that closed-circuit escape respirators (CCERs) and open-circuit escape respirators (OCERs) are used under the same circumstances, in identical applications, and are stored in the same environmental conditions in mines, on ships, and in other work settings. Accordingly, OCERs are equally vulnerable to environmental damage in those work environments. Excluding OCERs from the rule does not support the goal of improving the effectiveness of protective equipment for *all* workers, and will establish inconsistent testing regimes for OCERs compared to CCERs.
2. It will not be possible to design new CCERs meeting the various proposed requirements without making the units substantially larger. The proposed capacity test regime could require the smaller and lighter CCERs to be even larger than a current 60 minute device. Many workers already feel that the current 60 minute devices are too big to be worn safely and effectively for the duration of a work shift.
3. Through personal observation, I can confirm the trade-off acknowledged by NIOSH between the size of the unit and a worker's willingness to wear the unit on his/her belt. I personally

have observed workers in mines taking respirators off the belt for comfort and convenience reasons. Mineworkers wear other heavy equipment required to perform their jobs, including cap lamps, tools, and sometimes air monitors. Thus, it is essential to keep the CCERs as light and compact as possible, for maximum worker acceptance, and therefore maximum safety. In my expert opinion, if these requirements go into effect, the units will be approximately 45% bigger and 65% heavier. This will lead to a much greater tendency to keep respirators near by, rather than on the belt. I also can testify that such behavior can be the difference between survival and death, as demonstrated by an incident at a chemical company where workers escaping a dangerous chemical release did not take the time to don respirators that were near by instead of on the belt, and as a consequence died.

4. I am not aware of any cases where workers have experienced hypoxia as a result of attempting to start a *compressed oxygen* respirator by exhaling into it. I have neither seen nor heard of that ever happening, and consider it very unlikely. In my experience and expert opinion, even inexperienced users will not begin use of a compressed oxygen respirator by exhaling multiple times into the device. Exhaling potentially toxic air into a closed circuit escape device is not something a worker would do naturally.
5. Exhaling into a *chemical* CCER is necessary if the oxygen starter in the unit does not function properly. This obviously presents a serious problem if the cold-start maneuver is required when a worker is transitioning into a second device. The surrounding atmosphere is toxic, and the user does not have sufficient volume in the device he/she is wearing. The rule should address this issue. In my expert opinion, this is a critical issue that should be addressed.
6. In my experience, there is a high rate of false-negative indicator readings, which is reinforced by the NIOSH Phase 7 LTFE (see page 5). Requiring all CCERs, regardless of their history of service, to be equipped with humidity, temperature, and bed integrity indicators of unknown correlation and accuracy would decrease safety. The false-negative indicator readings would result in an increased number of damaged CCERs remaining in service.
7. It is absolutely critical to the safety of the user that all test procedures be developed and verified before a new standard is imposed. NIOSH has not provided the Standard Test Procedures and cannot therefore make representations as to the impact they will have on user safety. The poor correlation of the bed integrity indicators currently in use highlights the critical importance of verifying all test procedures prior to rulemaking.

In closing, I would like to express appreciation for the opportunity to submit this statement, which I hope will assist NIOSH in making necessary changes and improvements to its rulemaking proposal.

Sincerely,

  
Michael B. Kay  
Engineering Manager  
April 10, 2009

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**Summary**

- Twenty-five years working in the field of respiratory protection.
- Responsible for the testing and certification of self-contained escape breathing apparatus used in mining, naval and commercial ships, and industrial applications worldwide.
- Conducted mine escape trials in US and European coal mines.
- Conducted shipboard escape trials at Great Lakes Naval Station, Us Navy Yard, and British Royal Navy HMS Excellent, Portsmouth.
- Trained US and European miners and sailors on the proper use of escape breathing apparatus.
- Developed the EEBD Safety Case for the British Royal Navy.
- Co-developed the first commercially available Automated Breathing Metabolic Simulator (ABMS) in use at NIOSH, Aberdeen Proving Grounds, and the US Navy.
- Co-developed the M-20.2 EEBD currently in-service onboard US Navy ships, and other navies worldwide.
- Developed a low-cost expectation trainer that allows coal mines to comply with Mine Safety and Health Administration Emergency Mine Evacuation Final Rule. Patent applied for.
- Developed a ratcheting hand wheel that prevents a firefighting SCBA cylinder connection from losing seal. Patent applied for.

**EDUCATION**

**Aug 1979 – December 1983 Eastern Illinois University, Charleston Illinois**  
Bachelor of Science Industrial Technology

**OCCUPATION**

**Ocenco Incorporated, Pleasant Prairie, Wisconsin**  
Manufacturer of respiratory protection equipment.

**Sep 2000 – Present,**  
Engineering Manager

**Aug 1988 – Sep 2000**  
Research and Development Testing

**Feb 1984 – Aug 1988,**  
Quality Assurance Supervisor