

**Miller, Diane M.**

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**From:** PLowry@bacou-dalloz.com  
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**To:** NIOSH Docket Office  
**Cc:** Boord, Leslie F.  
**Subject:** CBRN Air-Purifying Escape Respirator Standard-June 30, 2003 Draft



JUNE 30 DRAFT  
3RN APR ESCAPE

( See attached file: JUNE 30 DRAFT CBRN APR ESCAPE DRAFT-CO2 COMMENTS P.  
Lowry.doc)

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August 5, 2003

NIOSH Docket Officer  
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Subject: Additional Comments on CO2 Test in June 30 NIOSH DRAFT "Concept for CBRN Air-Purifying Escape Respirator Standard"

Comments on Section **6(d) Breathing Gas:**

This section requires the determination of carbon dioxide in the inspired air of human test subjects wearing the escape device.

Human test subjects should not be used for determining CO2 concentrations. Accurate and reliable machine tests are available for this purpose.

Variability within and among human test subjects may cause this test procedure to yield variable and non-reproducible results.

NIOSH has pointed out this potential problem in its own test procedure RCT-ASR-STP-0139 "DETERMINATION OF FACEPIECE CARBON DIOXIDE CONCENTRATION LEVELS OF SELF-CONTAINED BREATHING APPARATUS STANDARD TESTING PROCEDURE (STP)".

Paragraph 1.1.4 of this STP states: *"Significant variations on a breath by breath basis for an individual prevent an accurate and reproducible determination of the average concentration levels to which he is exposed. This makes it difficult to evaluate different types of apparatus and it prevents accurate comparison among those submitted for approval."*

Paragraph 1.1.5 goes on: *"As a result, a machine test method was developed, using human breathing characteristics, to enable comparison between breathing apparatus, to give reproducible results, and to permit standardization on a procedure that is both accurate and reliable."*

Has NIOSH overcome the problems of obtaining accurate, reproducible results with human test subjects? If so, will NIOSH publish a validated test procedure?

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