

# CBRN Escape Respirator Concept

## Docket and Meeting Comments

---

### Public Meetings

- October 16 and 17, 2002
- April 29, 2002

### Docket

- 6 Submissions



# CBRN Escape Respirator Concept

## Docket and Meeting Comments SUMMARY BY TOPIC

- ABMS
- Approval Fees
- Beards / Glasses
- Breathing Gas Control
- Breathing Resistance
- Communication
- CWA
- Dermal Protection / Hood
- Design Considerations
- Field of View
- Fogging
- Flammability
- Gas Life / Capacity
- LRPL
- Panic Demand
- R&D testing
- 'Rugged' vs. 'Light-use'
- (Additional Topics)



# CBRN Escape Respirator Concept

## Docket and Meeting Comments

### ABMS

#### COMMENTS

- Cost Prohibitive
- Consider use of current NIOSH CO2 testing procedures
- Consider 1% CO2 at 80 lpm
- Consider 2.5% CO2 at 10 lpm
- Need information on metabolic variables of breathing gases
- Delete testing requirement for higher breathing rate

#### HOW ADDRESSED

- No longer part of requirement



# CBRN Escape Respirator Concept

## Docket and Meeting Comments

### APPROVAL FEES

#### COMMENTS

- Reduce cost by having duplicate tests rather than triplicate

#### HOW ADDRESSED

- Under consideration



Workplace  
Safety and Health





# CBRN Escape Respirator Concept

## Docket and Meeting Comments

### BEARDS AND GLASSES

#### COMMENTS

- If the respirator includes a nose-cup, have a requirement for manufacturers to include a warning that the user must be clean-shaven.

#### HOW ADDRESSED

- Caution and Limitations statements will be required





# CBRN Escape Respirator Concept

## Docket and Meeting Comments BREATHING GAS CONTROL

### COMMENTS

- Consider higher CO<sub>2</sub> and lower O<sub>2</sub> values because the service times are short
- Consider varying CO<sub>2</sub> with service life
- What are acceptable criteria for CO<sub>2</sub> > 2% or O<sub>2</sub> < 19.5%
- What is the rationale behind the 1.5% CO<sub>2</sub> requirement?

### HOW ADDRESSED

- Sliding scale based on 42 CFR 84
- Based on 42 CFR 84
- Peer review of physiological effects of breathing gases



# CBRN Escape Respirator Concept

## Docket and Meeting Comments BREATHING RESISTANCE

### COMMENTS

- 20 mmH<sub>2</sub>O is design restrictive, will require inhalation / exhalation valves

### HOW ADDRESSED

- Retain 20 mmH<sub>2</sub>O for use by all workers (old, pregnant, physically impaired)



Workplace  
Safety and Health





# CBRN Escape Respirator Concept

## Docket and Meeting Comments

### COMMUNICATION

#### COMMENTS

- Preliminary testing at SBCCOM has not shown success
- Conflicts with mouth-bit designs

#### HOW ADDRESSED

- Requirement eliminated



# CBRN Escape Respirator Concept

## Docket and Meeting Comments

CWA

### COMMENTS

- HD liquid is higher than the APR standard
- How will SMARTMAN be modified for different mask configurations (nosecup or mouth piece)?

### HOW ADDRESSED

- HD liquid redefined (same as APR)
- No modification to SMARTMAN required



Workplace  
Safety and Health





# CBRN Escape Respirator Concept

## Docket and Meeting Comments

### DERMAL PROTECTION / HOOD REQUIREMENT

#### COMMENTS

- Should not be part of a respirator requirement
- Facepieces are easier to don than hood, and smaller and lighter
- Retain the hood requirement because of users who do not typically wear respirators (beards and glasses)

#### HOW ADDRESSED

- Caution and Limitations statements will be required



# CBRN Escape Respirator Concept

## Docket and Meeting Comments DESIGN CONSIDERATIONS

### COMMENTS

- What constitutes the 'Specific' designation?
- Where can CO be added as an additional requirement?
- Designate CO as mandatory requirement

### HOW ADDRESSED

- Categories redefined
- CO option available for 'General' and 'Specific'



# CBRN Escape Respirator Concept

## Docket and Meeting Comments

### FIELD OF VIEW

#### COMMENTS

- Are the Field of View criteria appropriate for hoods? The requirement is based on face masks?

#### HOW ADDRESSED

- Less restrictive criteria than APR





# CBRN Escape Respirator Concept

## Docket and Meeting Comments

### FOGGING

#### COMMENTS

- Allow users to clear visor during test

#### HOW ADDRESSED

- Performance requirement remains as stated



# CBRN Escape Respirator Concept

## Docket and Meeting Comments

### FLAMMABILITY TESTING

#### COMMENTS

- Only perform testing on CO 'Specific' units
- 6 burner test may not be appropriate for a hood
- Consider alternative tests:
  - EN 270 (airline hoods - single burner)
  - EN 403 (self rescue hoods - single burner)
  - EN 136 (3 tiered approach)

#### HOW ADDRESSED

- Only applicable to APRs with CO protection and all SCBA
- All tests are single-burner





# CBRN Escape Respirator Concept

## Docket and Meeting Comments

### GAS LIFE / CAPACITY

#### COMMENTS

- Consider using IDLH and ERPG values
- Use 3X IDLH for 'General' category
- Debate on ratings < 30 min:
  - 15 min minimum
  - 3, 5, and 10 min
- SCBA, consider > 1 hr

#### HOW ADDRESSED

- ERPG values used
- 'General' category based on 3X IDLH
- For APR, 15, 30, 45, 60 minutes
- For SCBA, as required by 42 CFR 84





# CBRN Escape Respirator Concept

## Docket and Meeting Comments

### LRPL

#### COMMENTS

- 2,000 LRPL is too high
- How is the 95% pass criteria defined?
- 500 LRPL is more reasonable
- Make LRPL proportional to test concentration for 'High', 'Specific', and 'General'
- Why is LRPL same for SCBA and APR?

#### HOW ADDRESSED

- LRPL Redefined- Consistent with protection required



# CBRN Escape Respirator Concept

## Docket and Meeting Comments

### PANIC DEMAND

#### COMMENTS

- Define where the requirement is in the standard

#### HOW ADDRESSED

- Panic Demand requirement applicable to both 'General' and 'Specific' categories



# CBRN Escape Respirator Concept

## Docket and Meeting Comments

### R & D TESTING

#### COMMENTS

- How will R&D be scheduled?
- Can R&D testing be used as pre-submission data?

#### HOW ADDRESSED

- Certification testing takes priority
- Yes, but not as certification data



# CBRN Escape Respirator Concept

## Docket and Meeting Comments

### 'RUGGED' VS. 'LIGHT USE'

#### COMMENTS

- 'Light-duty', smaller, units would provide greater ease for users to carry on their person
- Consider tiered testing approach for 'light-duty' vs. 'rugged' units

#### HOW ADDRESSED

- Not Specified- design restrictive
- Makes certification process too cumbersome





# CBRN Escape Respirator Concept

## Docket and Meeting Comments (ADDITIONAL TOPICS)

### COMMENTS

- Non-Ambulatory Escapes
- Use For Children

### HOW ADDRESSED

- Not part of standard
- Not part of standard



# CBRN Escape Respirator

- June 30, 2003 Edition of Concept Paper
  - Breathing Gas Concept From Public Meeting
  - Editorial Corrections
  - July 25, 2003 Comments to Docket
- CBRN Escape Statement of Standard August, 2003
- CBRN PAPR Initial Concept August, 2003
- Next Public Meeting Sept. or October