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**From:** Kenneweg, Wes [mailto:Wes.Kenneweg@draeger.com]  
**Sent:** Monday, August 18, 2008 2:20 PM  
**To:** zzMSHA-Standards - Comments to Fed Reg Group  
**Cc:** Kroeger, Rainer; Drews, Ralf; Poch, Norbert; Diercks, Dietmar; Fernando, Rohan; Tully, John; Silvey, Patricia - MSHA  
**Subject:** RIN 1219-AB58 Comments re Refuge Alternatives

Dear MSHA,  
Attached please find the formal comments from Draeger regarding the Refuge Alternatives for Underground Coal Mines.

Thank you,

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AB58-COMM-22
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**§ 7.502 Definitions.**

The following definitions apply in this subpart:

*Apparent temperature.* The combined effects of air movement, heat, and humidity on the human body.

*Breathable oxygen.* Oxygen that is at least 99 percent pure with no harmful contaminants.

**Comment 1**

Ref. Page 34167, § 7.502 Definitions

**“Breathable Air” must be also be mentioned and defined in this section. Compressed air is also used as part of the life support gases in refuge shelters.**

**§ 7.503 Application requirements.**

- (c) The application for approval of the air-monitoring component shall specify the following:
- (1) The operating range, type of sensor, gas or gases measured, and environmental limitations, including the cross-sensitivity to other gases, of each detector or device in the air monitoring component.
  - (2) The method for operation of the individual devices so that they function as necessary to test gas concentrations over a 96-hour period.
  - (3) Procedures for monitoring and maintaining *breathable air* in the airlock, before and after purging.

**Comment 2**

Ref. Page 34168, § 7.503 Application requirements

**“Breathable Air” must be defined and associated with a standard such as CGA G7.1 Grade D. Accuracy for gas monitoring instruments should be 10-15% to allow use of electronic instruments and detector tubes.**

- (d) The application for approval of the harmful gas removal component shall specify the following:
- (1) The volume of breathable air available for removing harmful gas both at start up and while persons enter through the airlock.
  - (2) *The maximum volume* of each gas that the component is designed to remove on a per-miner per-day basis.

**Comment 3**

Ref. Page 34168, § 7.503 Application requirements

**Clause should be removed. Determining these volumes is not practical. This can only be determined accurately by measuring the levels of toxic gases inside the chamber.**

**§ 7.505 Structural components.**

(a) The structure shall—

(1) Provide at least 15 square feet of floor space and at least 60 cubic feet of volume per person;

**Comment 4**

**Ref. Page 34168, § 7.505 Structural components**

**This clause should be removed. In an emergency situation, trained miners should be able to survive with less space.**

(3) Include an airlock that creates a barrier and isolates the interior space from the mine atmosphere, except for a refuge alternative capable of maintaining adequate positive pressure.

**Comment 5**

**Ref. Page 34168, § 7.505 Structural components**

**Positive pressure inside the shelter is always required to prevent toxic gases from entering the shelter. The airlock is required to admit persons into the shelter during use. Therefore both features are required for all types of shelters.**

**§ 7.506 Breathable air components.**

(c) Breathable air supplied by compressed air from cylinders, fans, or compressors shall provide a minimum flow rate of 12.5 cubic feet per minute of breathable air for each miner.

**Comment 6**

**Ref. Page 34169, § 7.506 Breathable air components**

**The flow rate of breathable air must be determined by the shelter manufacturer based on the particular design. In this case 12.5 cfm/ miner must be removed from this clause.**

(iv) Provide positive pressure and an automatic means to assure that the pressure is relieved at 0.25 psi above mine atmospheric pressure in the refuge alternative.

**Comment 7**

**Ref. Page 34169, § 7.506 Breathable air components**

**This positive pressure level is too high. Only a slight overpressure of 0.05-0.06 psi is necessary to prevent ingress of toxic gases.**

(6) The detectors shall be capable of being kept *fully charged* and ready for immediate use.

**Comment 8**

**Ref. Page 34169, § 7.507 Air-monitoring components**

**This requirement would mean that the gas analyzer would have the highest maintenance activity. It should be allowed to install the batteries and switch on the instrument inside the shelter after establishing a breathable atmosphere.**

Section 75.1504 Mine Emergency  
Evacuation Training and Drills

**Comment 9**

**Ref. Page 34156, Section 75.1504 Mine Emergency  
Evacuation Training and Drills**

**Section 75.1504 Training Drills states that every 90 days miners are instructed on the use of the chamber. Only once per year are they to activate the system such as inflatable. This is not enough training. Inflation or entry into chamber should happen every 90 days. Plus mines should determine competency of miners to complete this task.**

**General Points**

a)Inflatable shelters are unsafe as they may not endure a second explosion.