

Proposed OHS Guideline: Part 8, Personal Protective Equipment & Clothing

G8.45 Maintenance and inspections of self-contained breathing apparatus

Proposed February 15, 2005

Proposed section 8.45 (Maintenance and inspections) of the *OHS Regulation* states:

- (1) Inspection of compressed air cylinders must be done in accordance with *CSA Standard CAN/CSA-Z94-02, Selection, Use and Care of Respirators*.**
- (2) Self-contained breathing apparatus, including regulators, must be serviced and repaired by qualified persons.**
- (3) Compressed air cylinders must be hydrostatically tested in accordance with *CSA Standard CAN/CSA-B339-96, Cylinders, Spheres, and Tubes for the Transportation of Dangerous Goods*.**

The purpose of this guideline is to provide information on the application of the three subsections of this requirement on the inspection of self contained breathing apparatus (SCBA), servicing and repair, and hydrostatic testing.

An SCBA offers the highest level of respiratory protection available and is designed to provide respiratory protection in oxygen-deficient atmospheres and in situations where high or unknown concentrations of toxic gases, vapours or particulates are present. SCBAs are designed for the rigours of fire fighting and other emergency situations. As a consequence, a SCBA requires a high level of inspections and maintenance. The purpose of this section is to provide information on the requirements for inspecting and maintaining this type of personal protective equipment.

An SCBA includes the following components: full facepiece incorporating a second stage regulator, compressed air cylinder, first stage regulator, pressure gauge, alarm, connecting tubes, harness assembly, and associated fittings.

Subsection (1): Inspection

OHS Regulation section 8.45(1) requires that compressed air cylinders must be inspected in accordance with *CSA Standard CAN/CSA Z94.4-02, Selection, Use and Care of Respirators* (the Standard). Clause 10.3.3 of the Standard covers inspection of cylinders, including steel, aluminium, and composite SCBA cylinders. Inspections require an examination of both the exterior and interior of cylinders. The purpose of the internal inspection is to look for the presence of corrosion, moisture, oil, or other deposits. Internal inspections shall be carried out on an annual basis as prescribed by clause 10.3.3.1.1 of the Standard.

External inspections are conducted on a more frequent basis. Clause 10.3.3.1.7 of the Standard requires that an SCBA be inspected on a “schedule to ensure readiness for the anticipated emergency use”. For the purposes of this clause, the Board accepts the following inspection schedule:

- Municipal, city or industrial fire departments (see definition in section 31.1)
 - SCBAs are to be externally inspected at the beginning of each shift
- Volunteer fire departments

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- SCBAs are to be externally inspected at least weekly.

The purposes of the inspection include:

- Ensuring cylinders are filled to the rated capacity
- Ensuring hose connectors, hoses, cylinders, facepieces, head straps, regulators, harness components, warning devices, and gauges are free of defects, corrosion or deterioration.

All SCBAs are to be examined in accordance with the manufacturer's inspection and testing procedures. Except where impracticable, such as during emergency or other tactical operations, SCBAs are to be examined after each use in accordance with the manufacturer's recommended inspection procedure. In either case, defective equipment is to be tagged "out of service" until repaired and tested.

Refer to *CSA Standard CAN/CSA-Z94.4-02*, clause 10.3.3.1 for further information.

Subsection (2): Servicing and repair

OHS Regulation section 8.45(2) requires that SCBAs, including regulators and all other components as listed above, must be serviced and repaired by a qualified person. "Qualified", as defined by section 1.1 of the Regulation, means being knowledgeable of the work, the hazards involved and the means to control the hazards, by reason of education, training, experience or a combination thereof. For the purposes of subsection (2), qualified SCBA maintenance personnel will:

- be qualified through training and experience to inspect, maintain and repair respirators in accordance with the manufacturer's written instructions
- inspect, maintain and repair SCBAs as required
- ensure that maintenance tools are kept in good repair and properly calibrated, and
- maintain appropriate records of maintenance and repair in accordance with section 8.44 of the *OHS Regulation*.

Subsection (3): Hydrostatic testing

OHS Regulation section 8.45(3) requires that compressed air cylinders must be hydrostatically tested in accordance with *CSA Standard CAN/CSA-B339-96, Cylinders, Spheres, and Tubes for the Transportation of Dangerous Goods*. SCBA cylinders manufactured since 1996 are built to specifications prescribed in the 1996 edition of the CSA standard. In accordance with section 4.4(1) of the *OHS Regulation*, cylinders manufactured prior to 1996 need only conform to the edition of the standard published at the time the cylinder was manufactured.

CSA Standard CAN/CSA-B339-96 does not specify the frequency for testing. Clause 24.2.2.1 states cylinders used in a self-contained respirator (i.e., an SCBA) are required to be retested as specified by *CSA Standard CAN/CSA-Z94.4*. *CSA Standard CAN/CSA-Z94.4-02* recommends the following frequency for hydrostatic testing:

- every 5 years for aluminium and steel SCBA cylinders
- every 3 years for all other SCBA cylinders (e.g., carbon, fiberglass, or Kevlar-wrapped and hoop-wound cylinders).

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Refer to clause 10.6.2 of *CSA Standard CAN/CSA-Z94.4-02* for further information. Note that Clause 10.6.2.4 of this Standard states that a cylinder that has failed hydrostatic testing shall be returned to the owner who shall ensure that the cylinder is taken out of service and rendered unserviceable.

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