

Waterloo Vol Fire Department Standard Operating Guidelines

SCBA BREATHING APPARATUS

General

No person is permitted to enter into, or remain in an oxygen deficient or toxic atmosphere, nor can any person enter into or remain in any area where there is a high probability of an oxygen deficient or toxic atmosphere, unless they are wearing proper respiratory protection as outlined in this SOG.

Oxygen deficient atmospheres are where the oxygen level is less than 19.5% by volume. A toxic atmosphere is where the toxic substance present is above the STEL (short term exposure limit), where the carbon monoxide level is greater than 20 ppm or the LEL is greater than 1%.

Some examples of oxygen deficient or toxic atmosphere include:

- smoke or flames are visible
- Haz-Mat investigations
- confined space operations
- carbon monoxide investigations where the meter indicates CO of 20 ppm or more.

As a general rule respiratory protection should be worn whenever there is a doubt as to the quality or safety of the atmosphere.

Type of Respiratory Protection

- Only positive pressure SCBA, supplied by the Waterloo Fire Department may be used. The currently authorized SCBA is the MSA 4500 psi air mask, Firehawk regulator,
- The Waterloo Fire Department Fire Chief will select the appropriate SCBA for use by firefighters, in accordance with applicable OSHA, NFPA and NIOSH standards.
- Firefighters may use only a face-piece that has been fit tested in accordance with OSHA standards.
- Firefighters may not make any adjustments or modifications (other than those user permitted by the manufacturer) to any SCBA equipment (including regulators, valves, tanks, face-pieces, or cylinders).

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Authorized Users

No firefighter may use SCBA unless they have met all of the following:

- Received training on the use and operation of the SCBA.
- A current, unrestricted medical certificate on file with the Chief.
- A current and signed Respiratory Medical Evaluation Report stating that she/he is able to use respiratory protection is on file with the Chief.
- Demonstrated, on an annual basis, their proficiency in the donning, doffing and use of the SCBA.
- Are certified to the level of Firefighter 1 or equivalent.
- No facial hair comes in contact with the seal of the facepiece.
- Eye glasses do not interfere with proper seal of facepiece to face.
- Passed an OSHA approved fit test within the past 12 months **for the facepiece in use.**

SCBA Use

- SCBA must be in use for all interior structural firefighting, for all car fires, and in any situation where there is, or there is a high probability that there may be an oxygen deficient or toxic atmosphere, or when operating below grade. Oxygen deficient atmosphere is where the oxygen level is less than 19.5% by volume. A toxic atmosphere is where the toxic substance present is above the STEL (short term exposure limit) , where the carbon monoxide level is greater than 20 ppm, or when LELs are greater than 1%.
- Before each entry into an oxygen deficient or toxic atmosphere, or into the interior of any structure for firefighting purposes, each firefighter must check to be sure that he/she can maintain a proper seal between the face-piece and the face
- All SCBA must be used in accordance with the manufacturer's instructions and recommendations.
- Any firefighter must exit the toxic or oxygen deficient environment immediately if:
 - Low air warning device begins to sound.
 - If a tight face-piece seal cannot be maintained.
 - Experiencing shortness of breath, difficulty breathing, chest pain, dizziness, or lightheadedness.

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Notify your “buddy” that you are leaving. If you are experiencing any medical problems, go directly to the EMS personnel on the scene. Report to the IC as soon as possible after exiting.

SCBA Discontinuance

Only the IC may order the discontinuance of SCBA while any operation is in progress. In making this the decision the IC shall be guided by the following:

- For interior structural firefighting – an atmosphere of at least 19.5% oxygen by volume, and less than 20 ppm of carbon monoxide, as verified by direct read instrumentation.
- For other incidents – consideration of all relevant factors, such as type of incident, weather conditions, physical conditions, meters or other monitoring devices.

Medical Evaluation and Surveillance

- Whenever there will be prolonged use of SCBA, the IC will establish a rehabilitation area staffed by qualified EMTs. The EMTs assigned to rehab shall be used exclusively for firefighting personnel.
- All firefighters who have consumed 2 bottles of air will report to the rehabilitation sector, and at a minimum have their vital signs monitored and recorded as soon as possible after removal of firefighting gear.
- The EMT will make the determination if a firefighter may exit the rehabilitation station, and, if he/she can resume duties involving use of SCBA.
- A written record of all firefighters who were monitored shall be kept by EMS personnel, and given to the IC.

Fit Testing

- After receipt of a medical report stating that the firefighter is able to use SCBA, the firefighter will be issued a personal face-piece. The firefighter should use that face-piece for all SCBA operations.

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- At least once in every 12-month period, the fire chief will assure each firefighter must have her/his face-piece fit tested in accordance with OSHA regulations. A written record of the fit test will be maintained.
- In the event that a firefighter feels that his/her face-piece no longer fits properly, he/she should request that a new fit test be performed. Changes in facial structure, such as loss/gain of weight, injury to face, tooth loss, and skin surface
- changes may result in your inability to maintain a proper seal with your old face-piece. In addition, any damage or structural change to the face-piece itself may also result in loss of a proper seal.
- You may request another face piece any time that a proper seal cannot be maintained. You should request a new face piece if there are signs of damage or breakage or cracks in your face-piece. All requests for new face-pieces and the required new fit test should be directed to the Chief.

Equipment Inspection and Maintenance

• Personal Face piece

- Each firefighter should inspect his/her face piece on a weekly basis to see that all rubber fittings are in place, that there are no cracks or breaks in any part of the face piece, and that all straps are in good repair and operate properly. A weekly check to ensure a tight seal is also recommended.
- Any face piece that is not in good repair should be removed from service. The firefighter should contact the Chief or the Captain to request a replacement face piece and to remove the damaged face piece from service.
- The captain or his designee will be responsible to perform a monthly inspection per the approved checklist on each unit.

• Harness, Tank and Regulator

Prior to donning any SCBA a firefighter must inspect the following:

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- all fittings and hoses to be sure of tight connections and no air leaks or cracks
- all straps and buckles for tears or rips and to be sure that proper adjustments can be made
- harness for damage
- bottle and valve for cracks or leaks; be sure that bottle is secure in the harness
- PASS alarm operational
- regulator for proper fit in face piece, no cracked seals, no dirt or debris

Any equipment that does not pass inspection is to be immediately removed from service and reported to the Line Officer responsible for the apparatus.

Repairs

- No firefighter may make any repairs or modification to any SCBA equipment without the approval of a Line Officer. In no event will any repairs or modifications be made by a firefighter or Line Officer except those repairs or adjustments that are user permitted by the manufacturer. User permitted repairs and adjustments must be made in accordance with the manufacturer's instructions.
- All other repairs or modifications must be made by qualified repair personnel.

Cleaning and Disinfecting

- Personal Face piece: Each firefighter must wash and clean his/her face piece after each use, or when the face piece has become soiled or dirty.
- The face piece should be washed in hot water using an approved disinfectant soap or a mild dishwashing soap. The face piece should be rinsed in clear water and left to air dry. No chemicals or bleach should be used to clean the face piece. The face piece should be inspected before being stored.
- Other SCBA Equipment: At least every 6 months, or whenever any SCBA equipment has been exposed to fire, smoke, toxic or caustic atmosphere, or whenever it becomes soiled or dirty, it should be washed with a mild soap and rinsed with clear water.
- The Chief is responsible to confirm the SCBA are being properly cleaned.

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Storage

- Personal Face piece: When not in use, the face piece should be stored in a sanitary protective bag to keep it clean, dry and to minimize damage. It should be stored to protect it from sunlight, extreme temperatures, damaging chemicals and other destructive conditions that may deform the face piece or the valves. The face piece should be stored so as to prevent rubber and plastic parts from reforming into an abnormal shape
- All SCBA equipment should be stored so as to protect it from sunlight, dust, excessive moisture, damaging chemicals, or other destructive conditions.

Air Supply

- Individual air bottles may only be refilled from the compressor at our station, Truck 1641 or a filling facility maintained by the county.
- All compressed air used must at least meet the requirements for Type 1-Grade D breathing air described in the ANSI/Compressed Gas Assoc. Commodity Specification for Air, G-7.1 (1989) and shall have an oxygen content between 19.5 and 23.5%; hydrocarbon content of 5 milligrams/cubic meter of air or less; carbon monoxide content of 10ppm or less; carbon dioxide content of 1,000ppm or less; and no noticeable odor. Compressed oxygen may not be used.
- All tanks and cylinders used for respiratory protection will be tested and maintained in accordance with Shipping Container Specification Regulations of the Department of Transportation. All tanks and cylinders shall be marked and color coded in accordance with NIOSH standards.
- The compressor used to refill cylinders and tanks shall be constructed, operated and maintained so as to prevent the entry of contaminated air into the air supply system; minimize moisture content so that the dew point at 1 atmosphere pressure is 10 degrees F below the ambient temperature; have appropriate alarms to monitor carbon monoxide levels; and have suitable in-line air-purifying sorbent beds and filters to ensure breathing air quality. The couplings on the compressor must not be compatible with outlets or couplings for non-breathable air or other gas systems.

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- All filters shall be changed, replaced or refurbished periodically in accordance with the manufacturer's instructions. A tag will be kept at the compressor showing the date and person who last changed or cleaned the filter

Training and Proficiency

Prior to being permitted to assume full firefighting duties where there may be an exposure to an oxygen deficient or toxic atmosphere, all firefighters must first complete a State approved training program, the content of which includes classroom and practical training on the use of SCBA, including its operation and inspection. After the above training the member must show proficiency to the officers of this fire department through drills and trainings. At least annually thereafter the Department will provide each firefighter with refresher training.

In addition, all firefighters must demonstrate, at a minimum annually, their proficiency as follows:

- Understanding of the inspection, use and operation of all components of the SCBA.
- SCBA inspection procedures and protocols.
- Ability to don and doff SCBA, within acceptable time limits, while wearing structural firefighting gear.
- Ability to perform vigorous exercise routine while wearing full firefighter gear and SCBA.
- Properly clean the SCBA.