	TRAVIS COUNTY ESD #5 **MANCHACA FIRE RESCUE** **Department Policy** Authorized by:  Fire Chief Chris Barron	**B102.1** **Effective:** 10-30-2019 **Rescinds:** B102 **Reference:** C-2.13/TCFP/AFD B102 **Application:** Firefighting Personnel
Use, Inspection, & Care of SCBA and PASS		

I. Purpose

To provide all personnel maximum protection against death or injury due to respiratory-threatening atmospheres as well as provide guidance on the care and inspection of SCBA in order to meet operational readiness needs as well as regulatory requirements.

To provide equipment that will enhance the safety of all firefighters entering visually obscured atmospheres by means of audible alarm as well as provide guidance on the care and inspection of PASS devices in order to meet operational readiness needs as well as regulatory requirements.

To ensure an inspection schedule of Self-Contained Breathing Apparatus (SCBA) and Personal Alert Safety System (PASS) devices that meets compliance with NIOSH, NFPA 1852 and Texas State Law to provide for the safety of MFR personnel.

II. Background

SCBA and PASS devices are essential pieces of firefighter equipment. This equipment must be in a constant state of readiness in order to protect our members as intended. This equipment is of such vital importance that there are NFPA, OSHA, and TCFP regulatory requirements that govern its use, care and regular inspection that organizations must follow and document.

III. Policy

A. **Availability of SCBA.** All apparatus and vehicles subject to emergency response with the exception of brush trucks shall carry at least one Self-Contained Breathing Apparatus (SCBA) per company member.

B. **Proficiency.** All personnel subject to emergency scene response will be proficient in donning, utilizing, inspecting, and maintaining SCBA.

C. **Utilization.** All personnel working in situations where respiratory-threatening atmospheres exist, or where such atmospheres are likely to develop, shall utilize SCBA and PASS. As part of the firefighter cancer prevention efforts, use of SCBA shall be required through the overhaul phase of all fires.

D. **Return to service.** As soon as practical, a SCBA that has been used shall be returned to a ready state. This shall include cleaning, setting of the straps, changing a used cylinder, and placing the SCBA back in its mount.

E. **Cylinder refills.** It is the responsibility of the crew that used air from a cylinder to refill the cylinder before the end of the shift. An exception will be if the use of the cylinder was close enough to shift change to make refills impractical within the time available. In this event, it will be the responsibility of the oncoming shift to fill cylinders. All full time staff shall be trained in the use of the cylinder fill station and compressor. Only trained personnel should use the fill station or compressor. All cylinder fills will be properly logged.

F. **SCBA and PASS inspection and testing.**

1. **TCFP requirements.**

a. **Chapter 435, Section 3.** TCFP requires fire departments to "maintain and provide upon request by the commission, a department standard operating procedure regarding the selection, care, and maintenance of self-contained breathing apparatus that complies with NFPA 1852 Standard on Selection, Care, and Maintenance of Open-Circuit Self-Contained Breathing Apparatus (SCBA)."

b. **Chapter 435, Section 9**. Fire departments are required to "ensure that the PASS device assigned to or available to be assigned to an individual user be inspected at the beginning of each duty period and before each use."

c. **Inspection frequency.** Each SCBA and PASS will be inspected as required based on its assigned location. Inspection results shall be entered in the Department's tracking software by the individual that performed the inspection. Inspection documentation shall occur as soon as practical to when the inspection was performed. The on-duty Company Officer is responsible for ensuring that all required inspections are performed and documented.

1) **Frontline units.** The SCBAs on the first-out engine, tender, and brush truck (if so equipped) shall be inspected at the beginning of each shift (every 48 hours).

2) **Responsible member.** The on-duty member shall inspect the SCBA for their assigned position for that shift. The Company Officer shall delegate the inspection of any additional SCBAs.

3) **Reserve apparatus.** The SCBAs on reserve apparatus shall be inspected on a weekly basis based on the weekly equipment check schedule.

4) **Command vehicles.** The SCBAs on reserve apparatus shall be inspected on a weekly basis based on the weekly equipment check schedule.

5) **Spare SCBAs.** Any spare SCBAs that are not assigned to a vehicle shall be inspected on a weekly basis based on the weekly equipment check schedule.

2. **SCBA annual testing.** SCBAs shall be flow tested and inspected by a manufacturer's qualified technician on an annual basis.

3. **Facepiece fit testing.** Members shall be issued a facepiece and the member shall be tested for proper facepiece fit on an annual basis.

4. **Breathing air testing.** The breathing air system shall be tested that it meets air quality standards on a quarterly basis.

5. **Cylinder testing.** SCBA Cylinders shall be hydrostatically tested in accordance with DOT regulations.

IV. Procedure

A. **Storage of SCBA.** When not in use, each SCBA should be stored in its mounting bracket and should be secured from falling by use of the restraining strap, if available, or by passing a seat belt through the harness straps.

B. **Use of SCBA.**

1. **SCBA ready for use.** A SCBA will be worn ready for use by all personnel operating in a situation where the atmosphere is not contaminated or oxygen deficient, but the possibility exists that such a condition could develop.

2. **SCBA in use.** A SCBA will be worn with the facepiece in place, using cylinder air, by any personnel operating:
   a. **Indoor hazards.** Inside a structure where a contaminated atmosphere is known to exist.
   b. **Outdoor hazards.** At outdoor incidents that are known to produce toxic smoke and/or gases. This includes, but is not limited to, vehicle fires, dumpster fires and hazardous materials incidents.
   c. **Oxygen deficiency.** In an oxygen deficient atmosphere.
   d. **Suspected hazard.** In any situation where a contaminated or oxygen deficient atmosphere is suspected.
   e. **Explosion hazard.** In any area that may be subject to explosion or sudden contamination.
   f. **Above a fire.** On the roof or any floor above a working structure fire.
   g. **Carbon Monoxide.** In any atmosphere where monitoring has shown the carbon monoxide (CO) level to exceed 25 parts per million.
   h. **Hydrogen Cyanide.** In any atmosphere where monitoring has shown the hydrogen cyanide (HCN) level to exceed 0 parts per million.

i. **VOCs.** In any atmosphere where monitoring with a photoionization detector (PID) has shown the volatile organic compound (VOC) level to exceed 0 parts per million. Localized elevated VOC readings may be due to accelerant use and may not require SCBA use.

j. **LEL.** In any atmosphere where monitoring by a combustible gas indicator (CGI) has shown the combustible gas level to exceed 10% of the lower explosive limit (LEL) of methane.

k. **Overhaul.** In any post fire area where activities such as overhaul could produce airborne particulates or pockets of a hazardous atmosphere. Once the Incident Commander has made the decision that the IDLH atmosphere has sufficiently dissipated to warrant removal of SCBA, any personnel entering the fire area for overhaul or other activities that could produce airborne particulates shall continue to wear an SCBA.

3. **Company Officer responsibility.** It is the responsibility of each Company Officer to see that SCBAs are utilized when needed. The Incident Commander and Safety Officer will monitor each incident to ensure appropriate use of SCBAs.

4. **Gauge check.** All personnel entering an immediately dangerous to life or health (IDLH) atmosphere should visually check the pressure gauge located on the shoulder strap and the "heads up display" to ensure the amount of air supply in the attached cylinder.

5. **Consumption rate.** All personnel should be aware of their individual air consumption rate, which ultimately determines the amount of time personnel can expect to safely work in an IDLH atmosphere. Factors such as temperature and workload should be considered in determining the rate. The goal in determining the air consumption rate is for personnel to exit an IDLH atmosphere without consuming emergency air (the air available when the low air alarm is activated).

6. **Exiting the IDLH.** The low air alarm is designed to activate when the SCBA air supply reaches the emergency air supply. Members must strive to exit the IDLH atmosphere before their SCBA low air alarm activates and should not re-enter until their air supply is replenished. Company Officers shall ensure that any personnel entering, operating and exiting an IDLH atmosphere remain in a team of at least two members. The Division or Group Supervisor, Operations Section Chief or Incident Commander should be notified when crews exit.

7. **Safe handling of SCBA.** All personnel shall ensure the safe handling of SCBA. The regulator shall be carried in its holder when not in use preventing debris and water from entering the regulator and impeding its operation. Care shall be taken not to drag or drop the SCBA. This type of misuse or mishandling is considered a violation of this policy.

8. **Removal from service.** In nonemergency situations, SCBA regulators are not to be "swapped" from one SCBA to another. If an SCBA requires servicing, it should be removed from service, tagged with a description of the issue, and reported per MFR Policy. Out-of-service SCBAs should be removed from the fire apparatus as soon as possible.

C. **SCBA and PASS inspection.** Each SCBA, facepiece, and PASS device will be inspected as follows:

1. **Facepiece.**

a. Check facepiece for damage, especially cracks at the regulator insert.

b. Inspect head harness for damage and/or worn components.

c. Inspect nose cup, making sure it is behind the chin pocket and properly seated.

2. **Cylinders.**

a. Check the latest cylinder hydrostatic test date to ensure it is current.

b. Visually inspect the cylinder and valve assembly for physical damage such as dents or gouges in metal or in composite wrapping.

c. Check the cylinder pressure for "full" (5000psi or above) indication. If cylinder pressure is less than "full," replace with a fully charged cylinder.

d. Ensure that the cylinder is firmly locked in position by the cylinder retention assembly.

3. **Back frame/harness assembly.**

a. Visually inspect the complete SCBA for worn or aging rubber parts, worn or frayed harness webbing and for other damaged components.

b. Make sure that the breathing regulator purge valve (the red knob on the regulator) is closed.

c. Fully depress the center of the donning/air saver switch on the top of the regulator and release. The regulator may or may not be installed in the facepiece at this time.

4. **Hoses.**

a. Check that the quick disconnect on the hose to the breathing regulator is engaged properly by tugging on the coupling. Check for worn and/or cracked hoses.

5. **Pass and Heads-Up-Display (HUD) indicators.**

a. Slowly open the cylinder valve fully by rotating the knob counter-clockwise. The Vibralert alarm should actuate, and then stop. The Heads Ups Display will initialize with all five lights on for twenty seconds followed by display of cylinder supply level. If the low battery red light at the far right of the display remains lit or begins to flash, replace the battery according to the battery replacement procedures. When the cylinder valve is opened the PASS device will be activated. You will hear 3 quick chirps, and a green light located on the control console will flash approximately once per second. Two flashing lights mounted on the back frame sensor module will duplicate the lights on the control console display. The PASS device distress alarm is now in what is called the automatic mode. *If the air saver/donning switch has not been depressed prior to opening the cylinder valve, the Vibralert alarm will not actuate due to the air flowing freely.

b. Compare the air pressure indicated on the console gauge to the pressure indicated on the cylinder gauge.

c. Dock the regulator to a facemask.

d. Don the facemask or hold to the face and obtain a good seal.

e. Inhale sharply to automatically start the flow of air. Breathe normally from the facemask and check for normal flow and proper operation.

f. Remove facepiece from face. Air should flow freely. Fully depress the center of the donning switch/air saver switch on the top of the regulator and release. The flow of air should stop.

g. Rotate the purge valve a half-turn counter-clockwise. Air should flow freely from the regulator. Close the purge valve. The flow of air should stop.

h. Hold the unit motionless for 20 seconds. The green flashing lights on the control console and back frame are replaced by bright red lights which flash approximately once per second and are accompanied by an ascending/descending audible tone which increases in volume. This is the pre-alarm mode.

i. Move the SCBA to reset the PASS to the monitor mode.

j. Hold the SCBA motionless, allowing it to go into the pre-alarm mode, then 12 seconds more, allowing it to go into full alarm mode. You will hear a loud continuous 3-tone chirp accompanied by the flashing red lights on the back frame and control console.

k. Manually reset the PASS by pressing the reset button twice. Movement will not reset the device when it is in full alarm.

l. Test the manual PASS alarm by pressing the alarm button on the control console.

m. Manually reset the PASS by pressing the reset button twice.

n. Push in and rotate the cylinder valve knob clockwise to close it.

o. To check battery condition when unit is off, press and hold yellow reset button on console for two seconds. A green light on the console indicates that the batteries are good. A red light on the console indicates that the batteries need to be replaced.

6. **Pass volume.**

   a. Full alarm is indicated by a loud, almost continuous three tone 'chirp' from the sensor module, accompanied by the flashing of the red signal lights on the back frame and remote gauge console.

7. **Regulator.**

   a. Open the red purge valve slightly to vent residual air from the system. Observe the lights of the HUD and verify that they light properly in descending order. Close the purge valve when the gauge needle crosses the ¼ mark but before the beginning of the red "empty" band.

   b. The Vibralert alarm should actuate. The red light on the far left of the HUD will flash rapidly at 10 times per second. After verifying that all alarms are functioning, open the purge valve slightly to vent the remaining residual air pressure.

   c. When the airflow stops, return the purge valve to the fully closed position.

   d. Press the PASS reset button twice. You will hear an audible "click" indicating it is reset. If there is any residual air in the system, the green flashing lights will continue to flash while a fifteen second beep sequence is heard from the sensor module. Bleed the air from the system. As soon as the air has completely bled from the system, the unit will sound a quick two tone chirp and the PASS will be inactive.

   e. Ensure the SCBA and facepiece are clean and ready for service.

D. **Documentation.** Each individual shall log into PS Trax and complete the inspection record for the SCBAs and mask that they inspected. If the system is offline, report the outage. If the system remains offline into the second half of the shift, the inspection should be recorded on the paper form available on the Department web site.

E. **Critical events.**

1. **Documentation of settings.** Should a critical event occur involving a member wearing an SCBA, it is vital to the investigation of a line-of-duty death or life-threatening injury that all equipment knob and control positions be noted and photographed in the same position that they are found.
2. **Battery removal.** A very important step in assisting in the investigation is to IMMEDIATELY remove the batteries from the SCBA to eliminate its' source of power. This will lock the settings that were in place at the time of the emergency.
3. **Knob positions and preservation of cylinder air.** Air mask regulator and cylinder valve knobs should not be closed until the knob and regulator control positions are noted and documented, even if PASS alarms cannot be silenced until the controls are closed. If photography is not readily available, the positions should be noted by counting the number of turns to close valves and the remaining cylinder pressure noted. Documenting cylinder valve knob and regulator control positions and closing the SCBA tank valve in an expeditious manner also will allow cylinder air to be collected. This documentation of knob and control positions should be witnessed by at least two personnel. Laboratory testing of equipment for malfunction may be greatly complicated by changing control knob positions without proper documentation.

F. **Repairs.**

1. **PASS battery.** If the PASS device has a low battery, the sensor module will begin to sound a chirp approximately every two seconds. The green lights on the control module and back frame will go out. A red light will appear in the far right of the display (a dot, not a square). To replace the batteries:
   a. Be sure the cylinder valve is closed and all pressure is bled from the system. The PASS device should be completely inactive (turned off) before replacing batteries or damage may occur to electronic components.
   b. Use a Phillips screwdriver to loosen the screw on the battery compartment cover and carefully remove the cover.
   c. Remove all used batteries from the compartment and check for dirt or foreign matter. Check for any damage.
   d. Install 6 new AA batteries. Do not mix batteries of different age and/or type.
   e. Before replacing the compartment cover, clean the sealing rib around the battery compartment and ensure the gasket on the cover is clean and in good condition.
   f. Align the 3 grooves on the cover with the 3 tabs on the compartment housing and tighten the cover screw.
   g. After replacement of the batteries, perform a regular operational inspection.
2. **Other service.** When an SCBA, RIC pack, PASS device, or facepiece needs repair or servicing:

a. Remove the SCBA or air apparatus from the unit and mark it with a dated red tag with a description of the issue. The SCBA should be flagged in PS Trax so that the Breathing Air Coordinator is notified of the issue. Out-of-service SCBAs and RIC packs should be removed from the fire apparatus as soon as possible.

b. Only qualified technicians are authorized to repair SCBAs. Unauthorized attempts to repair breathing apparatus are a violation of this policy.