

STANDARD OPERATING GUIDELINES

ATMOSPHERIC MONITORING

Chapter 8.17

ISSUED: August 2020

REVISED:

SUBMITTED BY: Training Division

APPROVED BY: The Chief

PURPOSE

To verify the safety of an atmosphere and validate the need for, or removal of respiratory protection/Self-Contained Breathing Apparatus (SCBA). Alachua County Fire Rescue will monitor incidents involving, or suspected of involving, carbon monoxide (CO), Hydrogen Cyanide (HCN), or Oxygen levels outside the recommended range. This procedure will improve firefighter safety by outlining air monitoring procedures following fires or in smoke conditions.

GUIDELINES

The symptoms of CO and HCN poisoning are very similar and include the following:

- Low exposure levels: headache, nausea, fatigue, dizziness
- High exposure levels: respiratory problems, unconsciousness, cardiac arrest

When utilizing Personal Protective Equipment, follow Fire Rescue guidelines:

- Self-Contained Breathing Apparatus (SCBA) – SOG Chapter 10.2
- Safety Ensemble Inspection – SOG Chapter 7.7

PROCEDURES

Air monitoring must be performed following fires in an enclosed structure or smoke conditions in an adjacent structure/occupancy. Before authorizing SCBA removal, Fire Marshal entry or release of the scene following structure fires, Command must ensure CO and HCN readings are below recommended exposure limits; following vehicle or trash receptacle fires, smoke must no longer be visible. Document readings on the CoHCN Worksheet: O₂, CO, HCN Meter Readings. After the incident, send this completed form to the Health & Safety Captain.

To expedite lower CO readings, transition from gas to electric fans as early in the incident as feasible.

ACTION LEVELS

Any reading above the following NIOSH recommended exposure limits requires that SCBA be used:

- Oxygen should be between 19.5% and 23.5%. Monitor will alarm below or above this range.
- Carbon Monoxide is more than 35 parts per million (ppm). Monitor will alarm at 35 ppm.
- Hydrogen Cyanide is more than 4.7(5) parts per million (ppm). Monitor will alarm at 4.7 ppm.

If readings exceed the above listed limits, continuing monitoring of operations is unnecessary because SCBA must be used. Continued monitoring in a contaminated atmosphere only shortens the sensor and filter life.

- **DO NOT** over-saturate the sensors.
- **DO NOT** operate outside the recommended temperature ranges listed in the operational manuals.
- If large amounts of particulate are in the atmosphere, SCBAs should be worn, even if recommended exposure limit thresholds are not exceeded. This recommendation is to prevent inhalation of other airborne hazards for which we do not monitor (i.e. asbestos, arsenic, etc.).
- Ensure monitors remain in their charging cradles when not in use.