



# WARE FIRE DEPARTMENT

## Standard Operating Guideline

Effective Date: <b>July 2008</b>	SOG Category & Identification Number: <b>Operational OPS-010</b>	Revision:
SOG Title: <b>Carbon Monoxide (CO) Response</b>		
Approved by:	Re-evaluation Date: <b>July 2009</b>	Number of Pages:

**Purpose:** To safely and accurately evaluate a possible enclosed hazardous environment with regard to life safety, monitoring, eliminating and documenting any hazard due to conditions brought upon by carbon monoxide.

**Scope:** This guideline is shall assure proper response of the Ware Fire Department to incidents involving carbon monoxide or where carbon monoxide detectors have been activated.

### Application:

- All personnel shall know how to operate and accurately read all carbon monoxide detection equipment assigned to the department.
- All personnel shall know the minimums and maximum exposure levels of carbon monoxide as identified by the Consumer Product Safety Commission and the Occupational Safety and Health Administration.
  1. Maximum exposure level categorized as Immediately Dangerous to Life and Health (IDLH) 1200PPM.
  2. Flammable limits (12.5% to 74.2%)
  3. Auto Ignition Temperature 1,128 degrees F
- Symptoms from carbon monoxide exposure include:
  1. flu like symptoms
  2. headaches
  3. nausea
  4. dizziness
  5. shortness of breath
  6. confusion
- Carbon monoxide exposure/parts per million
  1. 9 ppm      EPA residential standard, not to exceed an eight-hour average
  2. 400 ppm    life-threatening after three hours
  3. 800 ppm    death within two hours

4. 1,600 ppm death within one hour
  5. 12,800 ppm death within one-to three minute
  6. 1,600 ppm smoldering fire, faulty furnace, kitchen range or water heater
  7. 3,200 ppm charcoal grill
  8. 70,000 ppm tailpipe exhaust on a cold weather start
- Carbon monoxide alarm standards (Underwriters Laboratories)
    1. 70 ppm alarm must sound with and one to four hours
    2. 150 ppm alarm must sound within 10 to 50 minutes
    3. 400 ppm alarm must sound within four to 15 minutes
  - Carbon monoxide combustion sources
    1. furnace
    2. water heater
    3. oven
    4. clothes dryer
    5. fireplace
    6. Space heater
    7. charcoal grill
    8. wood burning stove
    9. idling vehicle and an attached garage
  - Carbon monoxide is produced when fossil fuel burns incompletely because of insufficient oxygen. These fuels include natural gas, propane, kerosene, gasoline, coal, wood and charcoal.
  - Carbon monoxide incidents may result from improper installation, poor maintenance, or inadequate ventilation.
  - Negative pressure can occur inside a home due to outside weather conditions (strong winds) or from exhaust fans in the kitchen or bathroom, or exhaust from a close dryer.
  - In tightly sealed homes, negative pressure can force flew gasses to reverse flow, or back draft into a living space.
  - Carbon monoxide alarm should be installed outside of sleeping areas and approximately 10 feet from fuel burning appliances.
  - Carbon monoxide alarms should be installed on every level of the home.

**Response:**

- Engine 3 shall respond with two on duty firefighters for all carbon monoxide detector alarm incidents.
- Perform a fresh air calibration be fully using the carbon monoxide detector.
- To verify that the alarm is a carbon monoxide detector and not a smoke or fire alarm.
- Priority should be given to determining if there are any possible illnesses associated with the incident.
- If illness of more than one patient is determined, a duty group tone shall be transmitted and EMS summoned to the scene.
- Personnel entering the building shall don SCBA and activate the SCBA and obtain carbon monoxide meter readings.
- Personnel should be aware of the flammable limits, and IDLH limits.
- If high carbon monoxide readings are obtained, ventilation of the building should begin.

- If no carbon monoxide readings are attained in the carbon monoxide detector has alarmed or continues to alarm the building owner/manager should be advised to replace the carbon monoxide detector.