



**City of Winchester
Fire & Rescue Department
STANDARD OPERATING PROCEDURE**



Section: Fire Suppression Operations	SOP: 8.8
Subject: Carbon Monoxide Responses	Executed: November 1, 2011 Revised: November 1, 2013
Approved:  Scott Cullers, Fire Chief	Revised Approval:  Allen W. Baldwin, Fire Chief

PURPOSE

To establish a procedure for use by the Winchester Fire and Rescue Department (WFRD) when responding to carbon monoxide related incidents.

BACKGROUND

Carbon monoxide (CO) is an odorless, colorless and tasteless gas. It is non-irritating and results from the incomplete combustion of carbon-containing fuels. While CO is often associated with fossil fuels, it is important to remember that it also results from the incomplete combustion of wood and charcoal. Many appliances such as furnaces, kitchen stoves, fireplaces, hot water heaters, automobiles, etc., can produce carbon monoxide. When a faulty or unusual condition exists, carbon monoxide may be vented into areas where people are present.

Carbon Monoxide poisoning may be difficult to diagnose. Its' symptoms are similar to the flu, which may include headache, nausea, fatigue and dizziness.

EXPOSURE LIMITS

The National Institute for Occupational Safety and Health (NIOSH) has established a Recommended Exposure Limit (REL) for carbon monoxide of 35 ppm as an eight (8) hour TWA (time weighted average) and 200 ppm as a ceiling.

RESPONSE CRITERIA

Response to carbon monoxide alarms will be a single engine, truck, medic unit and the Battalion Officer; emergent. Additional units may be added as the situation dictates.

PROCEDURE

The following procedures shall be used:

1. ECC shall advise all occupants that they should evacuate the structure until the situation has been mitigated and to close all doors when exiting.
2. The Battalion Officer shall establish command as per the Department's Incident Command System SOP.
3. **DO NOT** ventilate the structure until initial CO readings are obtained and isolating potential faulty equipment is achieved. The structure can be ventilated once this has been completed. Ventilation must be coordinated with the Incident Commander.
4. Information that should be gathered from the occupants:
 - a. What and how many appliances do they have that use some type of fuel?
 - b. Are any being used at this time?
 - c. How long has the CO detector been sounding?
 - d. Has the structure been ventilated? If so how long?
 - e. What is the location of the CO detector that is sounding?
 - f. Is anyone feeling ill currently or in the past week?
5. Personnel entering into the structure shall be in full PPE, SCBA and breathing air. In addition, two multi-gas meters that read CO levels shall be zeroed in fresh air and accompany the crew making entry.
6. Carbon monoxide has a vapor density of 0.97. This is lighter than air so the tendency of this product is to rise. Entry crews shall be aware of this when metering the structure for CO.
7. Readings found to be 9 ppm or less:
 - a. Inform the occupant(s) that the Department's CO detection equipment **DID NOT** detect an elevated level of CO at this time.
 - b. Recommend the occupant(s) check their personal CO detector per the manufacturer's recommendations.
 - c. Attempt to reset the occupant(s) CO detector.
 - d. Inform the occupant(s) that if the detector activates again to call 911.

8. Readings found to be more than 9 ppm:
 - a. Any reading above 9 ppm shall be considered an above normal reading.
 - b. Inform the occupant(s) that the Department's CO detection equipment **DID** detect a potentially dangerous level of CO.
 - c. **DO NOT ATTEMPT ANY REPAIRS OR ADJUSTMENTS TO THE POTENTIALLY MALFUNCTIONING EQUIPMENT.**
 - d. The Incident Commander shall notify the proper utility agency, if applicable, after determining the type of equipment being used.
 - e. Once the source of the problem has been determined and the premises have been reduced to a safe level of CO (below 9 ppm) the premises may be occupied at the discretion of the Incident Commander. Entry crews may remove their SCBA.
 - f. The appliance determined to be faulty shall be "Red Tagged" and the occupants advised of their responsibilities.
 - g. If the incident location is a commercial facility or multi family occupancy, contact shall be made to the Fire Marshal and Building Official.
 - h. The occupant(s) shall be informed of the process taking place and what corrective action is being done.

9. Occupant Evaluation for CO

- a. The RAD 57 shall be used to check the Carboxyhemoglobin (SpCO) level for all occupants of the structure where any level of CO has been detected on our meters.

10. Documentation

- a. Personnel shall obtain all pertinent owner/occupant information for incident reporting. Information concerning the equipment (make, model, serial number) involved shall be documented and a red tag issued as appropriate.
- b. The metered CO levels shall be included in the incident report narrative.
- c. Patient care reports shall be conducted per Department SOP.