

Campbell County Fire Department Standard Operating Procedure		
Operations	Carbon Monoxide Incidents	<i>404.20</i>

I. PURPOSE:

The purpose of this procedure is to identify response practices for carbon monoxide emergencies.

II. SCOPE:

This procedure applies to all Campbell County Fire Department (CCFD) firefighting personnel.

III. PROCEDURE:

1. Carbon monoxide is an odorless, tasteless, colorless gas that is deadly. It is a by-product of a fuel burning process. Many appliances such as furnaces, kitchen stoves, 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.
 - 1.1. Carbon monoxide poisoning may be difficult to diagnose. Its symptoms are similar to the flu, which may include headache, nausea, fatigue and dizzy spells.
 - 1.2. The safe exposure of CO according to OSHA is 35 ppm.
 - 1.3. The EPA's National Ambient Air Quality Standard is 9 ppm for 8 hours / or 35 ppm for 1 hour. Normal atmosphere conditions may contain 3 to 4 ppm.
2. Nature of Complaint and Response
 - 2.1. Response to carbon monoxide alarms will depend upon information received in the initial dispatch message and from updates received from other agencies that may also be responding to the alarm.
 - 2.1.1. Carbon monoxide detector activated - occupant(s) complain of flu like symptoms: Respond, 1 company *Emergent*.
 - 2.1.2. Carbon monoxide detector activated - no medical symptoms of occupant(s): Respond, 1- company *Non-Emergent*.
3. Investigation Procedures
 - 3.1. The first arriving officer shall establish command.
 - 3.2. Determine if any persons at the scene are exhibiting symptoms of carbon monoxide poisoning; if so, immediately evacuate and ventilate the premises and request EMS.
 - 3.2.1. If no one exhibits symptoms of carbon monoxide poisoning, it will not be necessary to evacuate or ventilate the premises unless a level of over 9 ppm is detected.
 - 3.2.2. The incident commander shall request that the gas company respond to the scene if:

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- 3.2.2.1. A CO level of over 9 ppm is detected.
- 3.2.2.2. Someone is showing signs of being ill due to carbon monoxide.
- 3.2.2.3. The incident commander feels a response by the gas company is needed.
- 3.2.3. Gather information from occupant(s) about what they were doing and if any combustion appliances were being used.
 - 3.2.3.1. Where is the detector located? How long has the detector been alarming?
 - 3.2.3.2. Has the dwelling been ventilated? If so, for how long?
 - 3.2.3.3. Was a car running in the attached garage?
- 3.2.4. Carbon monoxide investigations (Procedure):
 - 3.2.4.1. Initiate a survey of the premises to determine if there are any amounts above 9 ppm of carbon monoxide present.
 - 3.2.4.2. All personnel shall make complete use of the SCBA in any atmosphere in excess of 35 ppm of CO.
- 4. Using what the monitor tells you:
 - 4.1. Readings of 9 ppm or less:
 - 4.1.1. Inform occupants that our instruments did not detect an elevated level of CO at this time.
 - 4.1.2. Recommend that occupants check their CO detector per manufacturer recommendations.
 - 4.1.3. Attempt to reset detector.
 - 4.2. Readings of more that 9 ppm:
 - 4.2.1. Note the highest level of CO found; inform EMS of findings.
 - 4.2.2. Inform occupants of potentially dangerous levels of CO inside the structure.
 - 4.2.3. If the source of the CO is found, shut off the appliance. Inform occupants to have someone come and service the appliance.
 - 4.2.4. Ventilate structure.
 - 4.2.5. Attempt to reset detector. It may take from 5 to 48 hours for the detector to reset; some units require sensor replacement.
 - 4.2.6. First Aid:
 - 4.2.6.1. Move occupants to fresh air (outside structure).
 - 4.2.6.2. Administer oxygen as needed.
 - 4.2.7. Down Drafting: Exists primarily in newer, more energy efficient, airtight homes. Air pressure in an airtight home may be lower than the outside causing flue gases to flow back into the home.
 - 4.3. Concentration Symptoms:
 - 4.3.1. 35 ppm - No adverse effects within 8 hours.
 - 4.3.2. 200 ppm - Mild headache after 2-3 hours of exposure.

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- 4.3.3. 400 ppm - Headache and nausea after 1-2 hours.
- 4.3.4. 800 ppm - Headache, nausea and dizziness after 45 minutes.
- 4.3.5. 1000 ppm - Loss of consciousness after 1 hour.
- 4.3.6. 1600 ppm - Headache, nausea and dizziness after 20 min. unconsciousness after 30 min.
- 4.3.7. 3200 ppm - Headache, nausea and dizziness after 5-10 min. unconsciousness after 30min.
- 4.3.8. 12800 ppm - Immediate effects; unconsciousness and danger of death after 1-3 min.

NOTE: If structure is has natural gas service, contact Source Gas to respond to the scene.

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