PURPOSE: This procedure provides a standard, safe approach to reports of carbon monoxide incidents, including home carbon monoxide detectors in alarm.

GENERAL: Carbon monoxide is an odorless, tasteless, colorless toxic gas. Any fuel burning device or appliance, such as gas furnaces, stoves, water heaters, clothes dryers, automobiles, heaters, barbecues, etc. may produce carbon monoxide as a by-product of combustion. When faulty or unusual conditions exist, carbon monoxide may be vented into areas where people are present.

Carbon monoxide poisoning can be difficult to diagnose because of its nonspecific symptoms. Symptoms of carbon monoxide poisoning may include headache, nausea, fatigue, and dizziness. Generally, these may be described as flu-like symptoms.

The Occupational Safety and Health Administration established a permissible exposure limit of carbon monoxide in the workplace at 35 parts per million (ppm) over an 8 hour period, 40 hour week. The U.S. Environmental Protection Agency established non-regulatory residential levels not to exceed 9 ppm over an 8-hour average.

RESPONSE: Dispatch will determine if the carbon monoxide report includes any victim experiencing symptoms of carbon monoxide poisoning, or if it is simply a detector in alarm.

Symptomatic Exposure: Will be dispatched as a medical response. An additional response for monitoring carbon monoxide in the structure will be dispatched.

Non-Symptomatic/Detector in Alarm: A company will be dispatched on a public service call for purposes of monitoring carbon monoxide in the structure.

INVESTIGATION: Responders shall verify that the alarm is a carbon monoxide detector and that the detector is properly installed and batteries are charged. When this is verified, the company shall determine any unreported or unrecognized symptoms of carbon monoxide poisoning. If there are symptoms, the company shall monitor, evacuate the premises as necessary, and request
necessary EMS response. In any event, responders shall initiate a carbon monoxide investigation of the structure:

1. Zero the carbon monoxide monitor in fresh air.

2. Obtain the following information:
   a. List of all fuel burning appliances
   b. Were the furnace and fireplace both operating at the time of the alarm?
   c. Was a fireplace, space heater, or wood or coal burning stove operating?
   d. Was the oven operating? For how long?
   e. Was a car running in an attached garage?
   f. The time the detector went into alarm and for how long.
   g. Has the building been ventilated since the detector alarmed?
   h. What is the overall condition of the home, especially how weather tight?

3. Do a preliminary walk-through of the residence with the carbon monoxide detector, using the sampling pump. Note areas with a CO level above 9 ppm and above 35 ppm.

4. Operate all combustion appliances, run for at least 10 minutes. If the car was running at the time of the alarm, turn it on and leave garage open. Turn on all exhaust fans.

5. Check combustion appliances with carbon monoxide monitor: furnace, water heater, dryer, space heaters, wall furnaces, fireplace, gas cook top, gas oven, grill. Use caution when removing panel. Check color of pilot light flame. Check inside of door to attached garage.

**TERMINATION:** After carbon monoxide levels have been monitored and noted, the structure shall be ventilated if there is contamination. Turn off combustion appliances. If air temperatures are or may be below freezing, use discretion before turning off furnace.

Fill in all applicable information on CO Investigation Release form. Have the owner or resident sign the form and retain a copy.
The owner or resident shall be given the handout "Effects of Various Carbon Monoxide Levels" and the brochure "Carbon Monoxide, What You Need To Know About the Leading Cause of Poisoning Deaths in America". Advise the owner or resident of the dangers of continued exposure to elevated levels of carbon monoxide.

If elevated levels are found, have Dispatch notify Intermountain Gas. If an appliance appears to be venting carbon monoxide into the living area due to faulty installation, contact the Boise City Building Department next business day at 384-3800. If venting appears to be due to disrepair, etc., the owner or resident should be advised to contact a qualified service technician for repair.
Date_______ Incident Number____________ Officer________________

Street Address___________________________________________________

Resident(s) Name(s)______________________________________________

Owner Name (if different)________________________________________

Owner Address____________________________________________________

Range of carbon monoxide levels found _______ppm to _______ppm

Specific levels found (by area)__________________________________
_________________________________________________________________
_________________________________________________________________

Recommendation to resident/occupant:_____________________________
_________________________________________________________________

I received information regarding the effects of various levels of carbon monoxide and possible sources of carbon monoxide. I understand that any corrective actions required are the responsibility of the owner and/or occupant.

Owner/Occupant Name (print)

Owner/Occupant Signature  Date

BFD Officer Signature
Effects of Various CO Levels

<table>
<thead>
<tr>
<th>Carbon Monoxide Level in PPM</th>
<th>Resulting Condition/Effect on Humans</th>
</tr>
</thead>
<tbody>
<tr>
<td>9</td>
<td>Ambient air quality standard-residential (US-EPA)</td>
</tr>
<tr>
<td>35</td>
<td>Permissible Exposure Level 8 hours (OSHA)</td>
</tr>
<tr>
<td>200</td>
<td>Possible mild frontal headache in 2 to 3 hours.</td>
</tr>
<tr>
<td>400</td>
<td>Frontal headache and nausea after 1 to 2 hours. Occipital after 2½ to 3½ hours.</td>
</tr>
<tr>
<td>800</td>
<td>Headache, dizziness, and nausea in 45 minutes. Collapse and possible death in 2 hours.</td>
</tr>
<tr>
<td>1600</td>
<td>Headache, dizziness, and nausea in 20 minutes. Collapse and possible death in 2 hours.</td>
</tr>
<tr>
<td>3200</td>
<td>Headache, dizziness in 5 to 10 minutes. Unconsciousness and danger of death in 30 minutes.</td>
</tr>
<tr>
<td>6400</td>
<td>Headache, dizziness in 1 to 2 minutes. Unconsciousness and danger of death in 10 to 15 minutes.</td>
</tr>
<tr>
<td>12,800</td>
<td>Immediate effect unconsciousness. Danger of death in 1 to 3 minutes.</td>
</tr>
</tbody>
</table>

Source: American Industrial Hygiene Association