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From: Sells\_List\_Server%DOELNC@DOE.GOV  
Subject: YELLOW/Caution: Unattended Laboratory Heating Equipment  
Sender: ListServer@HQLNC.DOE.GOV  
**Title: Yellow Alert- Unattended Laboratory Heating Equipment**

Date: 1/2/03 Identifier: LL-2002-LLNL-30

**Lessons Learned Summary:** Two recent events at an LLNL facility illustrate once again that small electrical heating sources should be monitored while in use.

**Discussion of Activities:** In the first LLNL incident, plastic bottles of culture media were left to thaw in a water bath. The researcher was distracted by other work, and forgot that the water bath was on. Overnight the water in the bath evaporated and the bottles originally floating in the water contacted the heating element at the bottom of the pan. The hot element melted one of the bottles, causing the smoldering plastic to release an unpleasant odor. The next morning a building resident noted the odor, immediately contacted the fire department, and the building was evacuated until the source of the odor was determined to be nonhazardous. In the second incident, another researcher placed a beaker partially filled with water on a hot plate to gently heat a plastic tube containing a sugar solution. The researcher returned to the office to attend to other matters, and forgot about the hot plate. The beaker boiled dry and the plastic tube melted, again releasing an unpleasant odor. Since toxic chemicals could have been in the tube, personnel were evacuated from the area around the lab until the tube content could be determined. The experimenter returned to the lab, identified the tube's content as benign, and everyone was allowed to go back to work.

**Analysis:** As with other small appliances, laboratory equipment such as water baths and hot plates can be hazardous if left unattended.

**Resolution:**

1. Monitor heat sources. This is especially important when the device does not have additional built-in safeguards, such as a timer or high temperature shutoff. Microwave ovens, hot plates, burners, and water baths are all sources that have been implicated in fires.
2. Utilize equipment with built-in high temperature or dry running protection. Newer products are available with these safety features.
3. Purchase equipment that has been tested and certified by a Nationally Recognized Testing Laboratory (NRTL). NRTL certifications are marked on labels attached to the equipment.
4. Purchase a small electronic timer to clip onto your badge holder to remind you to return to a hot plate, water bath, or other heat source operating for a lengthy time period.
5. Install a shutoff timer on the electrical power source to your heating device. These can be used on laboratory equipment as well as coffee pots to avoid having them run overnight. Note that the time switch must be appropriately rated for the load being controlled.

Priority Descriptor: Yellow / Caution  
Work / Function: Fire Protection, Laboratory Experimentation  
Hazard: Electrical / NEC

ISM Core Function: Develop / Implement Controls

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Keywords: Lab equipment, electrical, heating sources