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Subject: Blue Alert- Energy-Producing Device Hazards

Title: Blue Alert- Laboratory Energy-producing Device Hazards and Emergency Response Preparedness

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Lessons Learned- · Energy-producing devices (e.g., hotplates, soldering guns) should be disconnected and/or stored when not in use. · Lab Owners and operators need to maintain awareness at all times. Give your space the once-over every time you enter or leave. Emergency-response personnel need direct assistance from qualified staff during reentry to large, complex facilities such as ECF. Provisions for blocking doors open to run fire hose should be made to avoid hose crimping during emergency response.

Discussion- On October 20, 1999, the Lab Owner was doing an inventory of parts in Room 1305. H was using a workbench that had a MirakTM Thermolyne heater/stirrer on it. The heater/stirrer was plugged into the power strip on the workbench. The power switches on the workbench and on the heater/stirrer were on, but the heater/stirrer controls were not on. The plate on the heater/stirrer was being used as a writing surface. A calculator, a ballpoint pen, and a small plastic cap from a fitting were also on the plate. At about 1100 am two personnel from the SNL Transportation Team entered Room 1305 to move an instrument rack. At about 1115 am another operator entered Room 1305. All four personnel then placed the instrument rack on its side on a four-wheel cart. This operation was done in the area in front of the workbench. The rack was moved out of Room 1305 at about 1120 am. Sometime shortly after 1120 am, the second operator walked through the area near the workbench. He did not detect anything out of the ordinary (e.g., unusual odor). At about 1140 am an automatic smoke detector in the air return to AHU-8, which services Room 1305 and several other labs, actuated. The ECF was successfully evacuated of all personnel. A strong odor was also noted by several personnel who were working outside and to the southeast of the building. The fire department and other emergency-response personnel arrived on the scene within five minutes. The fire department made their initial entry to the equipment area on the second floor in the area of AHU-8. No smoke or fire was present. They then made a sweep of the labs on the southeast corner of the south wing where they discovered smoldering plastic on the hotplate in Room 1305. The hotplate was unplugged and moved outside. Ventilation was established in the area around Room 1305 to remove the odor. Personnel were allowed back into ECF at about 130 PM. There were no injuries and property damage was less than $100.

Analysis- ECF Management had discussions with personnel who were directly involved and did a debriefing the afternoon of October 20. Personnel concluded that the temperature control on the heater/stirrer had been inadvertently bumped while moving the instrument rack. The temperature control is a combination push button and dial with a readout. When the dial is depressed, the temperature is controlled at the minimum, 800 C. The dial must be rotated to increase the control temperature. This is hot enough to melt plastic and produce an odor and

particulate in the air, but not hot enough to cause the plastic to ignite. The following additional problems and issues were also identified

· The heater/stirrer was not stored properly after it had been used the previous week.
· The workbench was cluttered.
· It is not good practice to use the plate on the heater/stirrer as a writing surface.
· The heater/stirrer was checked and determined to be working properly.
· Entry paths to the penthouse for emergency-response personnel could be improved. The fire department initial entry was through the stairwell near the lobby in the north wing. It is several hundred feet to the east corner of the south wing.
· Better provisions for blocking open doors to run fire hose could be made.

A 2-inch hose became crimped under a door at the main entrance. This could have compromised the fire department's ability to fight a fire had that been necessary.

· A member of the fire department reentry team from ECF staff could have facilitated the reentry. The ECF is a large facility with many hazardous areas in the south wing. Someone with knowledge of the facility and with keys and passcodes for access could have assisted the fire department during reentry, at least until the location of the emergency was located.

Resolution

· Clean up the workbench and the Room 1305 area
· Evaluate the methods used to block doors open for emergency-response personnel.
· Evaluate the use of trained ECF staff as part of the fire department's re-entry team.
Provide keyed access to the south wing roof of Building 905 from the outside stairwell.

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