Natural Hazards

Besides those hazards inherent in a laboratory environment, we also encounter hazards associated with our natural environment. These natural events may result in increased likelihood of some types of laboratory accidents as well. The campus policy for response to an emergency of this type is stated in the MSU *Natural Hazards Manual*. Our primary concern here is to address specific action to be taken in the Department of Chemistry during a natural hazard emergency. In case of a major natural disaster, faculty and staff may be required to provide extensive support for campus and community response teams, as resources will be limited. Access to many areas will be restricted, and all persons should be prepared to provide identification to Public Safety or other officials upon request. In some types of natural emergency, there may be no direct risk of damage to the MSU infrastructure. However, interruption of utilities or other services may essentially bring campus operations to a standstill. For the sake of this document, we will address two types of natural events that could result in direct catastrophic damage to Blackburn Science Building and its occupants.

Earthquakes

Murray State University is located in an area of potential seismic activity. Small tremors are experienced periodically in this region, and there is evidence that a significant earthquake is possible. Because there is no warning of pending activity, safeguards must remain in place to reduce danger to life and property. The following preventive measures are strongly advised.

- Secure all compressed gas cylinders. A single cylinder strap will not always hold a cylinder upright in an earthquake. A dual restraint is advised. Cylinder caps should be on all cylinders not in use.
- Follow general good practices for safe storage of chemicals. Glass containers of hazardous materials should be stored below eye level. Preferably, *all* chemicals and other hazardous materials should be stored below eye level. Some form of restraint should be used so that reagent bottles cannot easily slide off shelves. An inexpensive way to accomplish this is by use of elastic cords secured to shelf ends, running parallel to the shelf at an appropriate height to restrain bottles.
- Incompatible materials should be stored so that they remain separated even in a serious seismic event. Use of secondary containment vessels is often advisable.
- Instruments that could be damaged or could cause injury should be secured. A theft deterrent device, such as those used on many electronic balances, can afford seismic protection. Velcro strips attached to the benchtop and the instrument can provide inexpensive protection from motion.
- Tall cabinets should be secured to a structural support.

If an earthquake occurs, remain calm and follow these steps.

- In laboratories, extinguish flames and other heating devices. Where accessible, turn off main laboratory gas valves.

- Seek refuge in a doorway or under a strong desk or table. Avoid windows, shelves, and heavy equipment.
- After the initial shock, evaluate the situation and call Public Safety if emergency help is necessary. Protect yourself and be prepared for aftershocks.
- Report damaged facilities to Public Safety and Facilities Management. Gas leaks and power failure may create special hazards. To avoid potential electrical spark, do not turn on or off electrical switches or instruments.
- *After* the earthquake, evacuate the building if necessary. The TA or person in charge should give clear instructions regarding the route of evacuation and assembly location. Exit by way of the nearest stairwell. **Do not use elevators.**
    - Provide assistance for disabled or injured persons.
    - The person in charge should confirm that no one is remaining in the room and should close the door upon exiting.
    - Once outside, move to a clear area away from affected building(s), power lines, and other structures. Keep streets, fire lanes, hydrants, and walkways clear for emergency vehicles and crews. The designated assembly location will normally be the open area near the west Curris Center entrance.
    - At the assembly location, the Building Emergency Coordinator (or Assistant Coordinator) should account for everyone in the room. The response team (Public Safety, fire department, etc.) should be notified of any missing persons.
    - *If requested*, assist emergency crews as necessary.
    - An Emergency Command Post may be set up near the emergency site. Keep clear of the Emergency Command Post unless you have official business.
    - Do not return to an evacuated building unless told to do so by University emergency personnel.

Severe Weather

Several levels of severe weather emergencies exist. In any severe storm with high wind and/or lightning, take the following general precautions.

- Move away from windows. Close drapes or blinds if time permits.
- Avoid use of electrical equipment. It is often advisable to disconnect power from computers and other sensitive instruments. Use the telephone only if necessary.
- Avoid contact with pipes and plumbing to the extent possible.

A battery-operated weather radio is located in BL 453, and may be used to obtain current weather information.

A <u>tornado watch</u> indicates that weather conditions are favorable for the formation of a tornado, although a tornado has not been sighted. During a tornado watch, the instructor or other person in charge should review the tornado evacuation plan with students and others in the room or immediate area.

A tornado warning indicates that a tornado has been sighted and presents an immediate danger to those in the warning area. Sirens located on campus are activated by Public Safety when a tornado warning is issued. A characteristic warbling tone means imminent danger exists (a long steady tone indicates danger has passed). In a tornado warning, the following steps should be taken.

1. Remain calm.
2. The TA or person in charge should give clear instructions regarding the route of evacuation and assembly location. If time permits, seek shelter on a lower floor or the basement. DO NOT USE ELEVATORS. Note that the south stairwells do not provide basement access. In general, avoid windows and rooms on the south and west sides of the building.
    a. In classrooms (BL 312, BL 359, BL 320), move away from windows. If time permits, close windows and blinds, turn off lights, and close all doors. Where possible, take cover under desks. Lie down, sit, or crouch, protecting head as much as possible.
    b. In offices along the north corridor, move into the central office area (BL 314, BL 420) or into the main corridor near the northeast or northwest stairwell. If time permits, close windows and blinds, turn off lights, and close all doors. Where possible, take cover under desks or tables. Lie down, sit, or crouch, protecting head as much as possible.
    c. In offices along the south corridor, move into the main (south) corridor. If time permits, close windows and blinds, turn off lights, and close all doors. Where possible, take cover under desks or tables. Lie down, sit, or crouch, protecting head as much as possible.
    d. In laboratories, extinguish all flames and other heating devices. Move into the protected corridor area nearest the laboratory (see attached floor plans). Avoid windows and high hazard areas. If time permits, close windows and blinds, turn off lights, and close all doors. Where possible, take cover under desks or tables. Lie down, sit, or crouch, protecting head as much as possible.
3. Provide assistance for disabled or injured persons.
4. If exiting a room, the person in charge should confirm that no one is remaining in the room and should close the door.
5. The person in charge should account for everyone in the room. It may be necessary to notify a response team of missing persons.
6. DO NOT pull the fire alarm unless a fire or other imminent hazard (*other* than the storm) exists.
7. Use telephones only for emergency calls.
8. Wait for the "all clear" signal (a long solid tone) from the sirens on campus before resuming normal activities.
9. Follow appropriate emergency response procedures for dealing with hazardous situations that develop. These may include evacuation of the building, administration of first aid, etc., and are addressed elsewhere in this manual.