

## **Power Failures and Severe Weather**

### **Power Failures**

Laboratory operations can pose a significant risk to building occupants during an extended power failure, therefore, lab personnel must take appropriate actions to safeguard systems and operations. Laboratory personnel are not allowed to bring in a generator to run equipment. This guidance assumes the laboratory building ventilation system is not operational.

### **Before a Power Outage**

- 1) Make a list of equipment that must be reset or restarted. Keep instructions for doing so in a nearby place. Equipment that operates unattended should be programmed to shut down safely during a power failure and to not restart automatically when power returns.
- 2) Make a list of critical equipment that should be on emergency power. Check regularly that this equipment is plugged into the emergency power supply (if available). Consider purchasing a UPS (uninterruptible power supply) unit for computers or other similar equipment.
- 3) Identify a source of dry ice or liquid nitrogen for use during an extended power outage.
- 4) Do not store flammables in domestic refrigerators at any time. This is an even greater hazard during a power outage because vapor concentration may increase as temperature increases, creating an explosive atmosphere inside of a unit where sparking is imminent when the power returns.
- 5) Leave at least one flashlight in each area for use during a power outage. Use the type that is continuously recharged or keep fresh batteries with the flashlight.
- 6) If possible, avoid riding in elevators during a power alert. Elevator doors will not open when power is interrupted. Always use the stairs during an emergency.

### **While the Power is Off**

- 1) Secure all hazardous experiments. Make sure that any experiments in progress are stabilized and stopped.
- 2) Cap all chemical containers, close gas valves and completely close the sash of each fume hood in your lab.
- 3) Power off all equipment so it does not reenergize when power is restored to the building.
- 4) Close all interior lab doors to reduce spread of hazardous vapors and improve fire safety risks.
- 5) Check any equipment on emergency power. It may take up to 30 seconds for the emergency power to kick in. Items not permanently connected to emergency power outlets should not be connected during a power interruption.
- 6) Exit the lab and lock exterior lab doors.
- 7) Evacuate the building and follow established Departmental specific directives and supervisor guidance regarding alternate work locations.

- 8) If the power loss occurs during off hours, check all laboratories that may be running overnight experiments. Contact the persons involved so that they can properly secure their hazardous experiments.
- 9) Coordinate the use of temporary emergency power with Facilities and Operations. Do not bring in electric generators to operate equipment.

### **When the Power Returns**

- 1) Reset/restart/check equipment. In particular, check to ensure airflow of your fume hood has been restored.
- 2) Keep the sashes closed and do not use the hood until you are sure the hood exhaust system is working.

### **Severe Weather**

Prepare a lab contingency plan; including the items noted below, that meets your specific needs.

### **Laboratory Shutdown Procedures**

- 1) Shutdown experiments that could be affected by the loss of electricity, water, or other services.
- 2) Close the sash on all chemical fume hoods in the event that ventilation is lost.
- 3) Ensure that all chemical, radioactive and hazardous waste containers are properly covered and sealed.
- 4) Ensure that all gas valves are closed. If available, shut off gas to area.
- 5) Turn off all appliances, computers, hot plates, ovens and other equipment.
- 6) Review storage of perishable items. Consolidate valuable items within storage units that have backup systems or store items in duplicate locations as appropriate.
- 7) Review safety precautions for the use of alternate cooling methods (e.g. liquid nitrogen, dry ice, etc.), if used
- 8) Ensure that water reactive chemicals are in sealed containers and stored in areas that are unlikely to become wet.
- 9) Check that all gas cylinders are secured. Remove regulators and use caps.
- 10) Elevate equipment, materials and supplies, including electrical wires and chemicals, off of the floor, particularly in lower elevations that are prone to flooding.
- 11) Update emergency contact numbers for your lab. Ensure that they are properly posted on lab doors and provided to your department.
- 12) Secure lab notebooks and backup critical data on computers.
- 13) Close all doors, including cabinets, storage areas, offices and utility chase-ways. Lock all exterior lab doors before leaving