**Standard Operating Procedure**

**Laboratory Electrical Power Failure**

*This is an SOP template and is not complete until: 1) lab specific information is entered into the box below 2) lab specific protocol/procedure is added to the protocol/procedure section and
3) SOP has been signed and dated by the PI and relevant lab personnel.*

 Print a copy and insert into your *Lab-Specific* *Chemical Hygiene Plan*.

**Section 1 – Lab Specific Information:**

|  |  |
| --- | --- |
| **Department:** | Click here to enter text. |
| **Date SOP was written:** | Click here to enter a date. |
| **Date SOP was approved by PI/lab supervisor:** | Click here to enter a date. |
| **Principal Investigator:** | Click here to enter text. |
| **Internal Lab Safety Coordinator/Lab Manager:** | Click here to enter text. |
| **Lab Phone:** | Click here to enter text. |
| **Office Phone:** | Click here to enter text. |
| **Emergency Contact:** | Click here to enter text. |
| *(Name and Phone Number)* |
| **Location(s) covered by this SOP:** | Click here to enter text. |
| *(Building/Room Number)* |

**Section 2 – Type of SOP:**

[x]  Process [ ] Hazardous Chemical [ ]  Hazardous Class

**Section 3 – The Importance of an Emergency Power Failure Plan**

Like any other part of the infrastructure, electrical power to the campus can fail, either as an isolated incident (e.g., tripped circuit breakers or blown fuses) or as part of a larger event (regional power outages or natural disaster). When power failures occur, health and safety issues need to be addressed.

Planning makes any emergency easier to handle, and the emergency plan for any laboratory should include a well-defined list of procedures to be used by those working in the laboratory when a power outage occur.

**Section 4 – Before the Power Fails**

Designate emergency contact persons for each laboratory who can be reached 24 hours a day. They should be familiar with the lab and have adequate knowledge of the chemicals and procedures performed in the laboratory.

Maintain an emergency light (i.e., flashlights, cell phone flashlights) and make sure it is readily available.

Do not overload power strips; restrict use of extension cords to emergency use only.

Include in your emergency plan procedures for safely shutting down or stabilizing hazardous chemical procedures during a power failure.

If possible, program equipment that operates unattended to shut down safely during a power failure and not restart automatically when power returns.

If the unexpected restart of equipment could be hazardous, consider installing an anti-restart feature, also known as drop out protection.

Make a list of equipment that must be reset or restarted once power returns. Keep instructions near the equipment.

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.

**Section 5 – While the Power is Off**

Turn off and unplug all non-essential electrical equipment. This will reduce the risk of power surges and other unforeseen equipment damage or personal injury that could result when the power returns.

Cap all open containers of solvents to reduce volatile chemical vapors that may drift into the room air and cause exposure or explosion risks.

Cap all containers, including those in glove boxes and all hoods.

Discontinue all work in fume hoods and biosafety cabinets. Close each sash. Hoods may be on emergency power but at a reduced ventilation rate. This does not mean it is safe to continue work.

Secure current experimental work according to the emergency plan. Make sure that experiments are stable and do not create uncontrolled hazards. If the work is to be transported to a safe location, make sure to avoid any hazardous chemical spills during the move.

Shut down experiments that involve hazardous material or equipment which automatically restarts when power is available.

Turn off all spare gas cylinders at the tank valves. (Exception: if a low flow of inert gas is being used to control a reactive compound or mixture, the decision may be made to keep the gas on. However, this decision should be part of a written pre-approved standard operating procedure for the material or process).

Close all lab refrigerators and freezers (do not unplug) and avoid opening them. Although refrigerators and freezers will maintain their temperature for several hours if they are not opened, identify an emergency source of dry ice if you have items that must be kept cold and the outage lasts more than a few hours. However, do not use dry ice in walk-in refrigerators or other confined areas because hazardous concentrations of carbon dioxide gas will accumulate.

Help coworkers move out of darkened areas, and if asked to leave the area, please do so promptly.

If animals are in use, special precautions may need to be taken to secure those areas such as emergency power, alternative ventilation, etc. Proceed according to the emergency plan provisions.

**Section 5 – When the Power Returns**

Upon returning to the laboratory, proceed cautiously, check for any strange odors. Call 911, evacuate the laboratory, and alert the contact person if any strange odors or spills are found.

Reset/restart/check equipment as necessary. Do not use equipment damaged or operating improperly until proper repairs can be made by a trained and knowledgeable person.

Once the fume hoods have been restarted, verify the air flow has been restored and keep the sash down for at least 5 minutes to exhaust of any vapors accumulated in the hood.

If a refrigerator or freezer fails, keep the door closed until it has been repaired and returns to a safe working temperature.

**Section 5 – Getting Assistance**

If you have additional questions or concerns about power failure procedures please contact REM.

**Protocol/Procedure (Add lab specific Protocol/Procedure here)**

Click here to enter text.

**NOTE**

Any deviation from this SOP requires approval from PI.

**Documentation of Training** (signature of all users is required)

* Prior to conducting any work, designated personnel must provide training to his/her laboratory personnel specific to this emergency procedure.
* The Principal Investigator must provide his/her laboratory personnel with a copy of this SOP.
* The Principal Investigator must ensure that his/her laboratory personnel have attended appropriate laboratory safety training or refresher training within the last one year.

I have read and understand the content of this SOP:

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